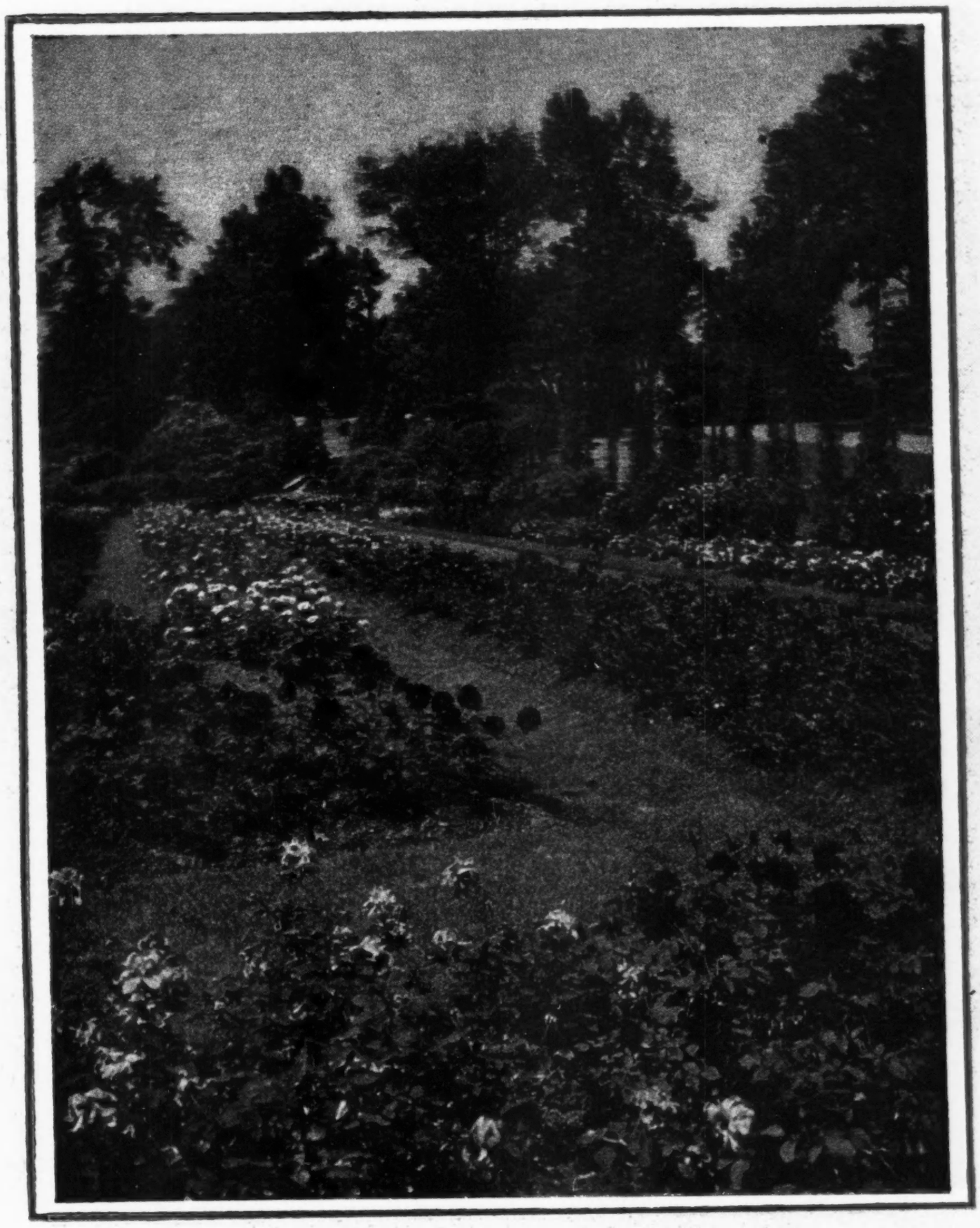
The Garden Journal

of the New York Botanical Garden



Vol. I, No. 3 May-June, 19

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Outdoor Displays

May — Thompson Memorial Rock Garden: Iris
June — Rose Garden.
Special event — Ninth Annual Rose-Growers' Day, June 8.

DOROTHY EBEL HANSELL
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THE GARDEN JOURNAL
of The New York Botanical Garden

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Front cover, kodachrome of the Rose Garden at The New York Botanical Garden by David Seabrooks; page 65, Bobbink & Atkins; page 66 upper left, Bobbink & Atkins, lower, Adrien Boutrelle; page 67 upper left, Armstrong Nurseries, lower right, Jackson & Perkins; page 69, Gottscho-Schleisner; page 70, E. N. Mitchell; pages 73, 74, Press Association, Inc.; page 75, E. N. Mitchell; page 77, Gottscho-Schleisner; pages 78, 79, African Violet Society of America, Inc.; pages 80, 81, 82, 83, Dr. F. C. Hoehne; page 84, City of Miami News Bureau; page 86, Gloucester-Mathews Gazette-Journal; pages 92, 93, E. N. Mitchell; back cover, borders of iris at The New York Botanical Garden, E. N. Mitchell.

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Provence or cabbage rose Vierge De Clery

THE POPULARITY OF THE ROSE IS TIMELESS

In the midst of the Napoleonic wars, even while the continental blockade was strictly enforced, there was one Englishman who crossed the lines between England and France without any trouble. His name was John Kennedy of the nursery firm of Kennedy and Lee near London. The purpose of his trips to France was to advise Napoleon's wife about her garden and to supply her with horticultural information. Josephine was determined to possess every unusual plant possible for her garden at Malmaison, with special emphasis on roses, and a war wasn't going to stop her. In fact, she even managed to turn the war to her advantage. Commanders of French ships were instructed to search all captured vessels for strange seeds and plants that might delight the Empress and excite her interest.

Certainly, much of the interest in roses that developed in the nineteenth century can be traced directly to the creation of the garden at Malmaison. A second event that influenced the trend was the introduction of the beautiful pink and yellow tea roses.

In the early part of the nineteenth century, there were probably a hundred varieties of *Rosa centifolia,* the hundred-leaved or Provence rose, which dates far back in history. Pliny mentioned it, and possibly it is the many-petalled rose of which Homer spoke. Definitely, it was familiar to Chaucer. Nevertheless, the origin of this species is obscure. The title Provence suggests that it came from Provence, in the south of France. And perhaps the Romans were responsible for introducing it there. Another suggestion is that the rose is native to Asia and is the one of which Herodotus spoke when describing a garden in Macedonia. *Rosa centifolia* was grown in Arabia, we know, because Avicenna, the Arabian doctor who discovered the art of extracting the perfume of flowers by distillation, used this rose in his first experiment. Thus was produced rose water.

The Provence rose was an excellent choice for this experiment. Much has been said and written in praise of its perfume. "The scents of the summer flowers are rich and joyous and sweetest of all are the scents of 'old roses.' The scent of the cabbage rose is more than a scent. It is the beauty of life itself, of its sorrows as well as its joys."

Yes, *Rosa centifolia* is also called the cabbage rose, probably because of the fullness of its petals and the manner in which they are folded over each other like cabbage leaves. However, this title is roundly assailed by Dean Hole in his *A Book About Roses,* in which he says, "For myself, 'I should as soon have thought of calling an earthquake genteel,' as Dr. Maitland remarked, when an old lady near to him during an oratorio declared the Hallelujah Chorus to be 'very pretty.' It must have been a tailor who substituted the name of his beloved esculent for a word so full-frought with sweetness, so suggestive of the brave and beautiful, of romance and poesy, sweet minstrelsy and trumpet-tones."

The beautiful white Provence rose was made available to English gardeners in 1777 quite by accident. A nurseryman, making his yearly summer excursion to Suffolk, chanced to see the plant growing in a tiny country garden. It had been planted by a carpenter "who found it near a hedge on the contiguous premises of a Dutch merchant, whose old mansion he was repairing." The nurseryman requested a small cutting, but the carpenter,

This is Fragrant Beauty —a new shrub rose with carmine-red flowers. The bush, about four feet high, blooms freely from June through October.

perceiving his genuine interest, generously gave him the plant. Apparently, a strong friendship developed between the two rose growers. In gratitude for receiving the beautiful white rose the nurseryman later presented the donor with "an elegant silver cup with the Rose engraved upon it . . . "

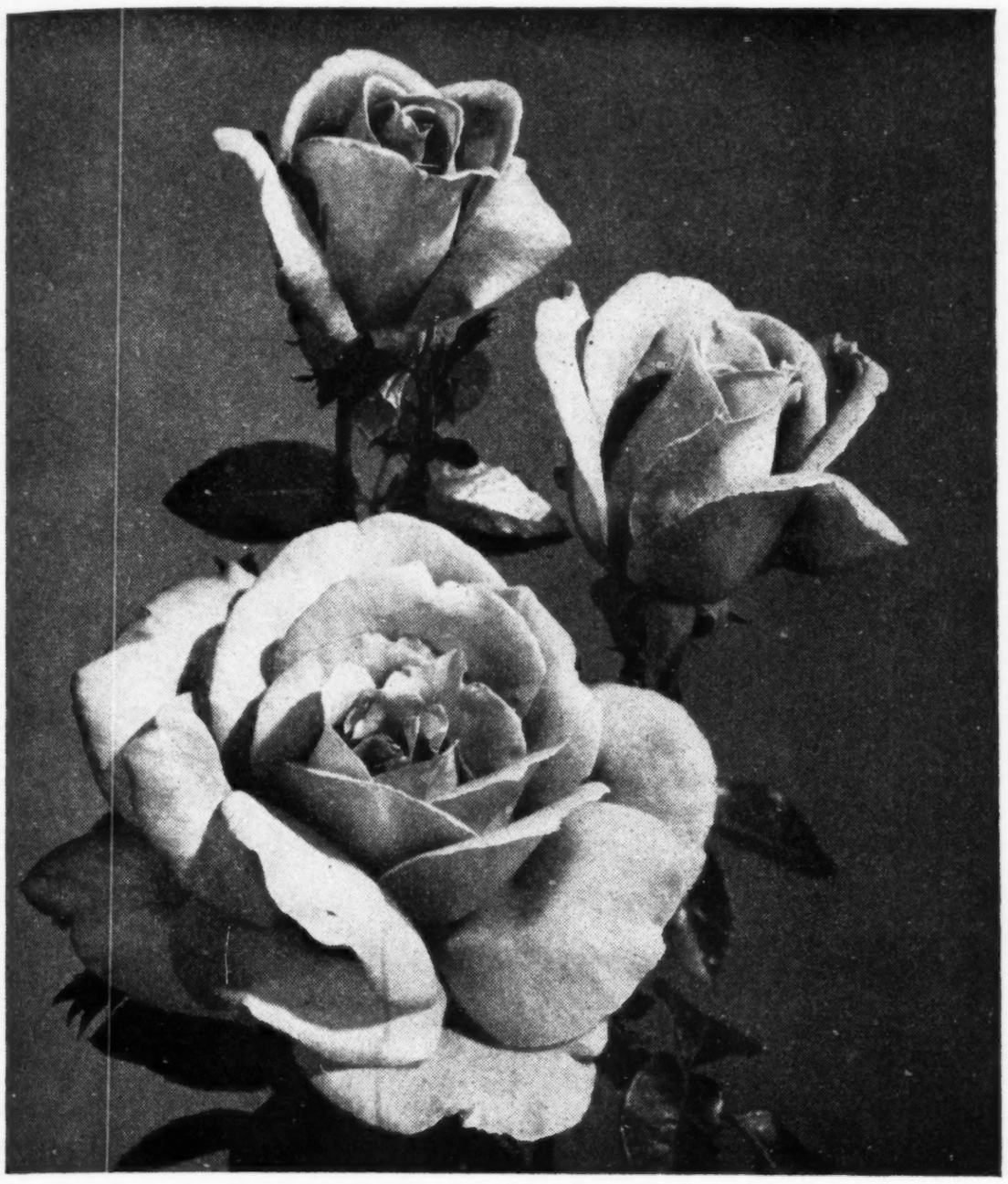
Though more than sixty years have passed since Baron Veillard developed Vierge De Clery, it is still considered the best white form of the Provence or cabbage rose in existence today. The large white flowers, faintly flushed with pink, are deliciously fragrant.

Although the Empress Josephine exerted tremendous influence on rose growers of the nineteenth century, the present popularity and culture of roses in the United States is due largely to the efforts of the late Lambertus C. Bobbink, of the firm of Bobbink & Atkins. Indeed, if Mr. Bobbink had not experimented with and specialized in roses, these garden favorites might have been very rare in the States today. Prior to 1914, nurserymen felt that it was impossible for field-grown roses to be used commercially in America. However, by substituting *Rosa multiflora* as an understock, instead of *R. canina* and *R. Manetti,* Mr. Bobbink started the successful growing of hybrid teas in the United States.

From the lavish days of the Empress Josephine to our modern streamlined era, the popularity of the rose has never waned. So great in fact is the love for this flower today and so avid the demand for information about the different classes and varieties and their cultural needs, botanic gardens and public parks have developed beautiful rose gardens and the American Rose Society has built trial gardens in different sections of the vast United States. Each year thousands upon thousands of rose enthusiasts visit these establishments to observe and study the behavior of roses.

From early June when the first buds begin to unfold until the last blooms fade under November's chill air, there are always visitors in the rose garden of The New York Botanical Garden. And Rose-Growers' Day has become the event to which rose growers look forward eagerly each year. The Ninth Annual Rose-Growers' Day will take place on June 8, 1951, and a cordial invitation is extended to all.

The rose garden of The New York Botanical Garden. In the right background the shelter house constructed through the generosity of Mrs. Elon Huntington Hooker; on the left, a corner of the sitting area donated by Henry F. du Pont.



Hybrid tea rose Helen Traubel

Just what does this last award signify? It means that this plant met the requirements for hardiness, disease-resistance, flowering habits, fragrance and other qualifying factors in nineteen A.A.R.S. trial gardens and six demonstration gardens located at universities, municipal gardens and nurseries in different parts of this country, under varying types of climatic and soil conditions. The late L. C. Bobbink was one of the founders of the All-American Rose Selections, an association of rose growers who are concerned with making available to American gardens the best possible roses through improved methods of hybridization and propagation.

The other two roses to win the All-American title for 1952 are the rich yellow Fred Howard and the delicately fragrant, pink Helen Traubel. Both are vigorous hybrid teas, which have bloomed prolifically in test plantings.

Within the last twelve to fifteen years, a class of roses has come into favor because of its usefulness on the moderate-sized, informally landscaped home property, in public parks and gardens, and on the grounds of industrial plants. This is the floribunda class.

Floribunda roses may be combined with evergreens or deciduous shrubs in foundation plantings, be employed as accent plants in the foreground of the shrub border, be planted as hedges or in beds by themselves.

A newcomer to this very useful group of roses is Vogue. Its hybrid tea-like flowers are rose overlaid with salmon; the foliage is dark green, the plant itself thirty to thirty-six inches high. Vogue holds a gold medal from Geneva and the Bagatelle gold medal from Paris, and is one of the three winners of the All-American rose awards for 1952.

The gold medal new floribunda rose Vogue

NEW RHODODENDRONS

For Our North Atlantic States

By John C. Wister

HYBRID rhododendrons of the Catawbiense group have been popular garden favorites along the Atlantic seaboard from Massachusetts to Maryland and Virginia for three quarters of a century. Their fine flowers of white, pink, red, purple and magenta come in late May and early June in the Philadelphia area. Their evergreen foliage is handsome the year round and the plants thrive in full sun as well as in partial shade.

The group gets its name from the purple-flowered species, *Rhododendron catawbiense* which grows wild in the mountains of Virginia, the Carolinas and Georgia. Little appreciated in this country, plants of this species were taken to England early in the last century and flowered there in 1809. Their good qualities were quickly recognized by keen British gardeners. Two years later, *Rhododendron arboreum,* a red-flowered, tree-like Himalayan plant was brought to England and in 1826 crosses were made between the two species, resulting in hybrids which soon evoked the enthusiasm of British gardeners. Encouraged by the reception of the new hybrids, other crosses were made between *R. catawbiense* and *R. ponticum,* a rosy purple species from Asia Minor. Later *R. maximum,* a late-flowering white species native from Maine to Georgia, was also used as a parent.

American gardeners knew nothing of these new plants until Anthony Waterer, an English nurseryman, brought 1,500 plants to the Centennial Exposition in Philadelphia, in 1876. They created a sensation, were quickly sold, and were followed by larger quantities shipped by Waterer and other nurserymen in the ensuing years. Old collections are to be found around Baltimore, Philadelphia, in the New Jersey and the Long Island suburbs of New York City, in Connecticut, Rhode Island and even in Boston.

In the 1890's and early 1900's, the largest public collection was at the Arnold Arboretum. Here after long trial, during which many varieties were winter-killed, those which survived were called "Ironclads".

There was little American propagation except by Samuel Parsons on Long Island; he raised several seedlings, plants of which are still grown. Most nurserymen bought young plants in England and Holland and resold them. This continued until importations were stopped by Plant Quarantine No. 37.

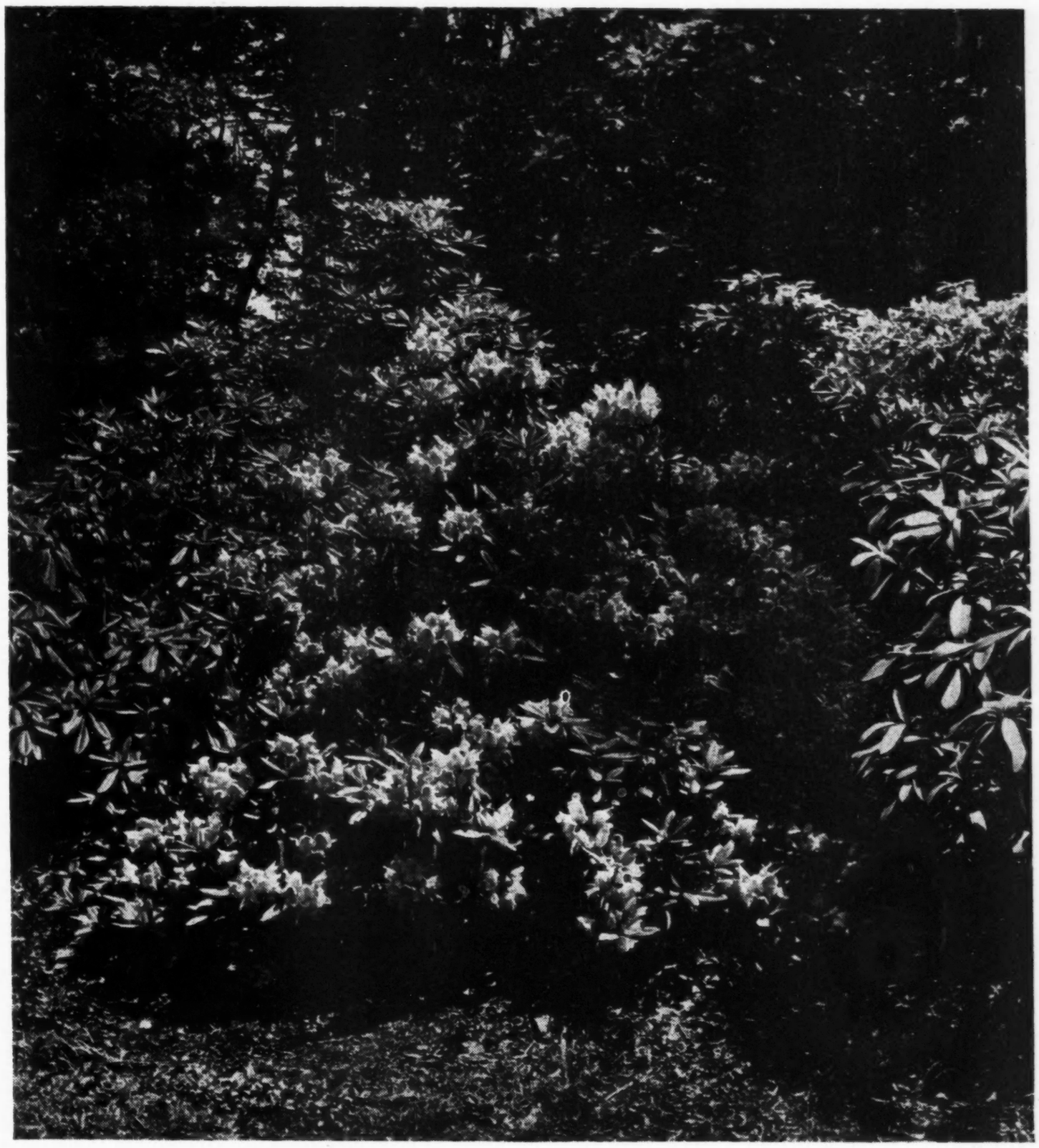
When this quarantine went into effect in 1919, there evidently were only two or three American nurseries propagating rhododendrons in any quantity. As these nurseries could supply only a small part of the demand, other nurseries took up the work. Today many thousands of plants are being produced yearly on both coasts, mostly by grafting on *ponticum* stocks. A few nurseries propagate also by layering. One or two have been successful with stem cuttings and leaf bud cuttings. Most of the varieties grown date back half a century or a century. The few more recent hybrids which are reliably hardy apparently differ little from the earliest ones.

In the first quarter of the present century, a great upswing in the popularity of the rhododendron began in Europe. This was caused by the discovery of hundreds of new species in China and India which, when brought to England, proved hardy in Cornwall and other mild regions. Skilled gardeners, amateur and professional, soon used them for breeding. Their seedlings became the center of attention in flower shows. Hundreds of varieties were named, propagated and introduced into commerce. Some succeeded only in the mildest climates. Others were successful in colder parts of England. A special Rhododendron Society, later affiliated with the Royal Horticultural Society, was formed. Its bulletins praised the new kinds and recommended that the old "Ironclads" be discarded as entirely superseded.

The new kinds were brought to this country and grew happily in favored sections on the Pacific Coast and in greenhouses. Much to the disappointment of gardeners in the east, they were not hardy here; they could not stand the winters of the Atlantic coast. The "Ironclads" were still the only ones reliably hardy with us.

This situation might have continued indefinitely, had it not been for the interest taken by one New Englander, the late Charles O. Dexter, who had retired about 1920 from his business in New Bedford to build a home and garden in Sandwich on Cape Cod. This property, only a mile or two from the ocean, was cooled by ocean breezes of moist air in summer, and had the extreme cold weather tempered by sea breezes in the winter. It was an ideal place for rhododendrons.

Mr. Dexter chose as his landscape architect, Paul Frost, of Cambridge. Mr. Frost was not only a skilled artist, but a tremendous enthusiast for rhododendrons and azaleas. His planting plans in 1922 included not only the "Ironclads" but many rare species and varieties gathered from a dozen or more sources. The rarest of these came from Leonard Ross, of Taunton, Mass., who had been an intimate friend of Jackson Dawson, the first superintendent of planting and prop-



The Dexter hybrid rhododendrons at The New York Botanical Garden are planted against a background of oaks and tulip trees east of the Museum and Administration Building.

agation of the Arnold Arboretum, and with whom Mr. Dawson had shared many of the treasures which had come to the Arboretum from all parts of the world.

Another rare group came from the Farquhar Nursery in Osterville on Cape Cod. John Farquhar was a Scotsman who had, after establishing a flourishing seed store in Boston, started a nursery in Dedham, Massachusetts, and later this nursery at Osterville. In it he had planted many rhododendrons he had purchased at Veitch's Nursery in Exeter, England. Most of them were represented as seedlings of the very lovely Chinese species *R. fortunei* or its close relatives, which had never been considered hardy in New England but had proceeded to grow happily in this mild section of Cape Cod. Before they could be cataloged and offered for sale, Mr. Farquhar died and his company decided not to continue the Osterville Nursery.

Frost had seen how the plants flourished, and in 1922 he persuaded Mr. Dexter to buy many of them. When E. H. Wilson visited Mr. Dexter in 1924, he was astonished to find flowering in America a number of the species he had discovered in China and introduced to Great Britain. At that time, he pronounced this collection of rhododendrons the most notable he had found in this country.

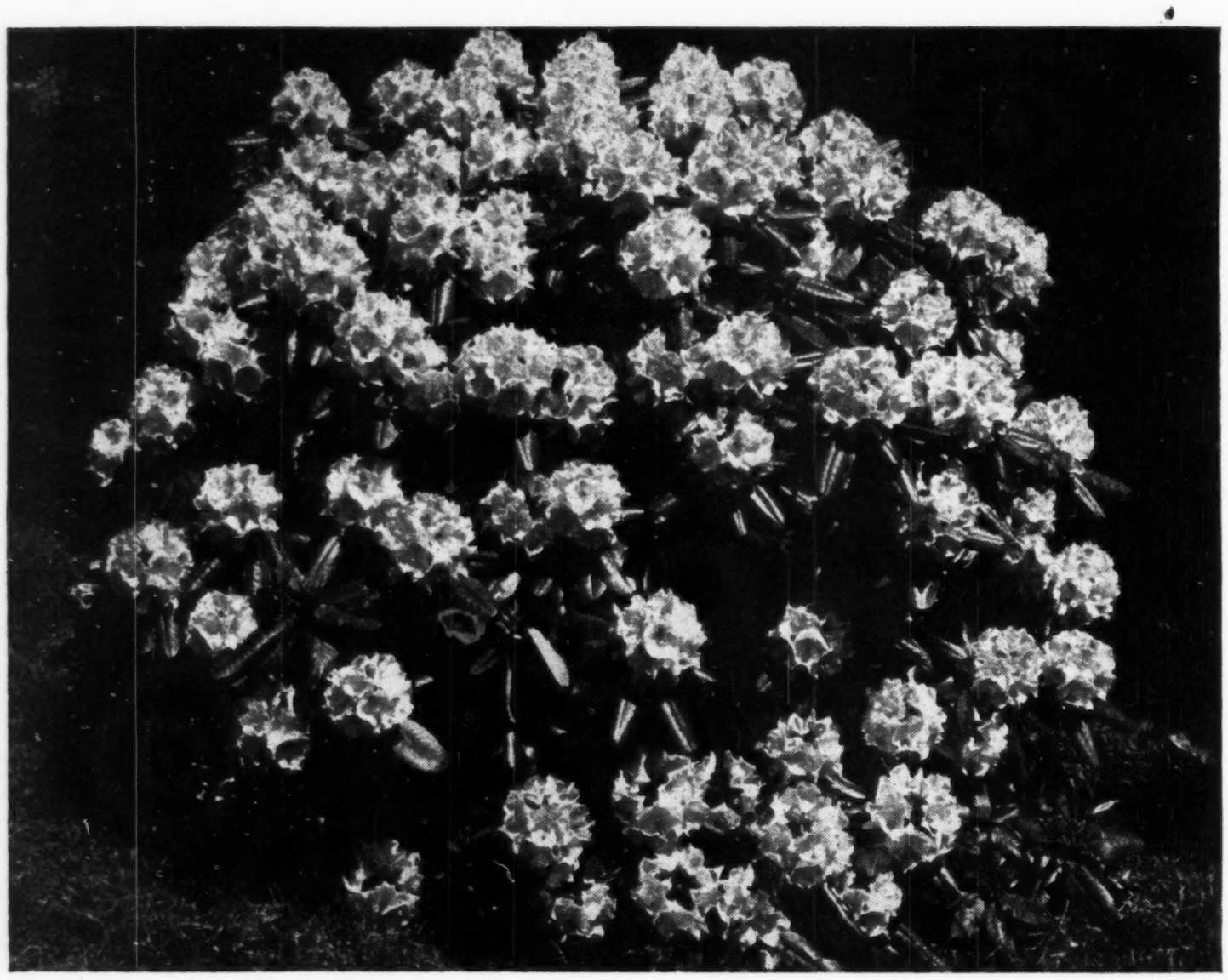
Inspired by Wilson's praise and the spectacular beauty of the new flowers, Mr. Dexter seems to have become a rhododendron breeder almost over night. He built a special greenhouse and by 1928 and 1929 was setting out yearly, in his woodland nursery rows, about 10,000 rhododendron and azalea seedlings. Wilson was already sharing with him seeds of new species received at the Arnold Arboretum.

In 1930, Frost went to England to visit J. G. Millais, the author of the great two-volume monograph on rhododendrons. Millais took him to J. C. Williams in Cornwall, planned his trip to other rhododendron gardens and, most important, gave him a letter of introduction to Kew and to Sir William Wright-Smith, of the Edinburgh Botanic Garden. Everywhere, the rarest of rhododendron seeds were thrust upon him.

As a result, Sandwich became a test ground for the possibilities of the Chinese and the Himalayan rhododendrons in our Atlantic seacoast climate. Most of them, of course, proved tender; however, Wilson remarked to Frost that if even one species proved hardy, the effort would have been worth while. Frost thinks that *R. haematodes* may be that one, but others flourished also and perhaps scores lived long enough to be used in Mr. Dexter's breeding program.

By the early 1930's, Mr. Dexter's place was becoming famous and was visited by many horticulturists. Among them was the late Leonard Barron, editor of the "Garden Magazine," who became so enthusiastic that he persuaded a great amateur gardener, S. A. Everitt, of Huntington, Long Island, to get some of the plants and try them on his wooded hillside. Within ten years, the Everitt place in turn became famous and was visited by horticulturists from all over the country. Gardeners in other parts of Long Island and in adjoining states began to get a few of the best hybrids to try in their gardens.

Today, there are good collections of these hybrids at (1) Henry du Pont's in Winterthur, Delaware, (2) the Scott Horticultural Foundation at Swarthmore College, (3) the Morris Arboretum in Philadelphia, (4) The New York Botanical Garden in New York City, (5) S. A. Everitt's, (6) John Parker's, (7) Henry Phipps' and (8) Ernest Coe's on Long Island, and, in the most severe climate of all, (9) the Arnold Arboretum. The parent collection (10) in Sandwich, with its untold thousands of plants ranging from a few inches to ten feet in height, remains the greatest in extent and beauty. After Mr. Dexter's death, the



A superb specimen of a Dexter hybrid rhododendron in full bloom last May at The New York Botanical Garden.

property was purchased by Colonel Roy Brown.

For a number of years, the collections just named have been visited by persons interested in rhododendrons. In 1950 a small group of these persons felt that some concerted action should be taken to evaluate the various kinds and to make them better known, so that they could be more widely tested under varying conditions. There was no question about the great beauty of most of the flowers, but there was and there still is every question about the great variation of hardiness among various seedlings of the same general parentage. There is also great variation in such qualities as reliable blooming year after year, good growth of plant, good foliage, resistance to drought, resistance to cold winters or to late frosts, etc.

The members of this small, informal and entirely unofficial committee, which was headed by Clement G. Bowers of Maine, N. Y., a research fellow of Cornell University, and included Donald Wyman of the Arnold Arboretum, Henry Skinner of the Morris Arboretum, Paul Vossberg of the Westbury Rose Co., Westbury, Long Island, and the author of this article, visited last year each of the places named. Their report will be sent to the American Association of Botanical Gardens and Arboretums, and to the American Rhododendron Society, in the hope of pointing out to these two rather new organizations that here on the east coast is a totally new group of rhododendrons worthy of most serious consideration.

No claim is made that these plants will in any way supersede or take the place of the well-known catawbiense hybrids, the "Ironclads" so long tested, so well known and so important in our gardens. Any such statement must await testing over many years.

Rather it will be pointed out that the value of the new plants comes from the fact that (1) they bloom about two weeks earlier than the "Ironclads", that (2) some of them are much more rapid growers, that (3) their flowers are much larger, that (4) they include apricot colorings not known in the "Ironclads" and that (5) some of them are fragrant. While their hardiness in more severe climates and through exceptionally cold winters and sudden changes of temperature remains to be tested, they have stood on the Dexter place nearly thirty years, during which time the thermometer has often gone well below zero. They have lived and bloomed on Long Island for over twenty years and at the Arnold Arboretum for nearly as long. At these three places, they lived through the record-breaking cold of the winters of 1933, 1934 and 1935, during which time the Arnold Arboretum reported a temperature of 30° below zero.

While there are, in the ten collections before mentioned, many thousands of plants of all sizes, there has been practically no propagation of selected clons. Nearly all the plants are seedlings. The first exceptions were some plants Mr. Dexter numbered, propagated by layers and sent to Mr. Everitt, who in turn made further layers for a few friends. More recently, Paul Vossberg, of the Westbury Rose Company, has propagated a limited number of plants by stem cuttings.

Most of the plants examined by the informal committee seem to fall into fairly definite color groupings. The whites are very scarce. The greatest number of plants are close to *R. fortunei* in quick growth and larger, fragrant, and rather washy, pale pink flowers. A smaller but still numerous group includes more compact, slower growing plants with beautiful rose-pink flowers without fragrance. The reds also are scarce, but there are some wonderful colors among them. The apricots (shades not found in the catawbiense group) are very scarce and the plants bearing flowers of these colorings have relatively poor foliage. All vary in season from two weeks earlier than the "Ironclad" catawbiense hybrids to plants which flower with these old, well-known varieties. Further study will undoubtedly bring to light many minor variations in each of these rough groupings.

In May and June 1950, the informal committee labeled and described about seventy plants. It is hoped these can be propagated and distributed for further study. After some years, the best twenty or twenty-five of the seventy might be named, propagated and distributed to nurseries through the offices of the Rhododendron Society and the Association of Botanical Gardens and Arboretums. If this can be done, a great forward step will have been taken for the horticulture of Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania and some adjacent states in making available valuable new plants, beautiful and fascinating.

Plants ——

and "The Man of Peace"

By H. N. Moldenke

AMONG the most important economic plants of the Holy Land in Biblical times were the olive, date, barley, wheat, and grapevine and all these were, of course, well known to Jesus. The oil used for anointing was olive oil, as was the oil mentioned in Jesus' parable of the foolish virgins. It is said that there is no tree more intimately associated with the history of mankind and the development of civilization than the olive (*Olea europaea*). It is a characteristic tree of the Holy Land. Gardens in Bible times were mostly olive orchards, and this is true of the Garden of Gethsemane. Olive oil mixed with the ashes of certain plants growing on the arid shores of the Dead Sea made the soap used in ancient times.

The date (*Phoenix dactylifera*) was the "palm" of the Bible and was one of the most valuable plants of the region, as it is even today. The date palm used to be as abundant in and as characteristic of Palestine as it was of Egypt. Its distinctive growth caused it to be employed as a landmark, its wood was used for lumber, its fruit as food, its leaves to thatch roofs, insulate walls, and line fences. Its dried leaves were used by the women to make dusters, and, woven together, to make mats, baskets, and dishes. Rope was manufactured from the fibers and a strong drink from the syrupy juice. The dried kernels were strung as beads by the women and made into necklaces and bracelets, and, soaked in water for several days, fed to camels, cows, and sheep. On the occasion of Jesus' triumphal entry into Jerusalem the crowds carried palm leaves as a symbol of victory.

The fig (*Ficus carica*), of course, was well known to Jesus and he referred to it in several parables. It was and still is one of the most important economic plants of that part of the world. A fig tree was usually planted in each corner of a vineyard, and one often overshadowed the village well. Normally, two crops of fruit are produced per year, the first or winter figs ripening in June, the second or summer figs on the new wood in August or September. It is the summer crop which is preserved for use in the winter in the Holy Land and when dried made into cakes or kept hung on strings. Baskets, dishes, and umbrellas are still made by sewing fig leaves together, and a paste of crushed figs is used medicinally to heal boils and other skin afflictions.

A second kind of fig is referred to in the story of Zacchaeus in Luke 19:4 under the name of "sycomore". The sycomore fig (*Ficus sycomorus*) is a robust wide-spreading tree growing thirty to forty feet tall, sometimes attaining a trunk circumference of twenty feet or more and a crown one hundred twenty feet in diameter. The main trunk is short, dividing near the base into many twisted and gnarled main branches which fork outwards in every direction. It is, thus, easy to climb and is frequently planted along roadsides in the Holy Land. It was a tree admirably suited to Zacchaeus' needs, when he wanted a vantage point from which to see Jesus over the heads of the crowd. The fruit is similar to that of the common fig, but is smaller and inferior in taste. It has always been used extensively for food by the poorer people in Palestine. The Egyptians used sycomore wood for making mummy coffins.

A Bible plant often confused with the sycomore fig is the "sycamine" of Luke 17:6 — "If ye had faith as a grain of mustard seed, ye might say unto this sycamine tree, Be thou plucked up by the root . . . and it should obey you." The sycamine is what we today call black mulberry (*Morus nigra*). Originally native to Persia, it was early introduced into Palestine and is now cultivated everywhere there for its delicious fruit. During the greater part of the year these trees clothe the landscape with a delightful verdure.

Barley (*Hordeum vulgare*) and wheat (*Triticum aestivum*) were the principal constituents of the "corn" in Jesus' day, but the quality of these grains was far inferior to that of our present-day barley and wheat. In fact, other more primitive species may well have furnished the bulk of the material. We recall barley in connection with the life of Jesus particularly through the story of his miracle of the five barley loaves and two small fishes. Wheat we recall chiefly in connection with Jesus' parable of the sower and the story of his disciples picking and eating the grain while walking through a "corn" field on the Sabbath.

In Matthew 13: 24-30 there is the unforgetable account of the man who sowed a field of grain only to have "tares" come up along with the grain. It is now believed that these "tares" were not the European vetch-like weed which we now know under that name, and which did not occur in Palestine in Jesus' day, but were darnel grass (*Lolium temulentum*). This is a strong-growing grass very closely resembling wheat or rye in appearance and from which it is extremely difficult to distinguish in its early stages. If it is allowed to grow up with the grain until harvest, its seed will become commingled with that of the wheat and ruin the flour. Its seeds have very deleterious, even poisonous properties because of a fungus which infests them. Bread made from flour containing darnel will cause a type of

drunkenness and even blindness.

In Mark 14:3 we read, "And being in Bethany in the house of Simon the leper, as he sat at meat, there came a woman having an alabaster box of ointment of spikenard very precious; and she brake the box, and poured it on his head," and in John 12:3 we read "Then took Mary a pound of ointment of spikenard, very costly, and anointed the feet of Jesus, and wiped his feet with her hair; and the house was filled with the odour of the ointment." The spikenard of Biblical times was *Nardostachys jatamansi,* a perennial herb related to our garden valerian, but with even stronger and more pleasantly scented roots. It grows at high altitudes in Nepal, Bhutan, and other parts of the Himalaya mountains and western Asia. Spikenard was a favorite perfume of Roman belles, and even today in India it is used to perfume the hair.

In his ministry Jesus was continually annoyed by the Pharisees who laid great stress on the letter of all religious law, but often neglected the spirit behind the law. Once he declaimed "Woe unto you, Pharisees! for ye pay tithe of mint and anise and cummin, and have omitted the weightier matters of the law." The mint to which he referred was probably *Mentha longifolia,* found today quite abundantly in the Holy Land and still commonly cultivated there. It is a much larger plant than our ordinary garden mints, attaining a height of three feet or more.

The rue which Jesus knew was probably the same *Ruta graveolens* which we cultivate today. Rue is not mentioned in the Old Testament among the plants that were to be tithed. This is probably because in Old Testament days a wild species of rue was common in the Holy Land and, of course, wild plants were not tithed. In Jesus' day, however, the wild rue had all but disappeared and so the Hebrews had to cultivate it as we do today. This accounts for the Pharisees tithing it. Rue was very highly thought of by the ancients as a medicinal herb; it was regarded as an antiseptic and a preventive of contagion.

The "anise" of Matthew 23:23 is now regarded as having been dill, *Anethum graveolens,* for there is no evidence that true anise was known in Bible times.

Related to the dill is the cummin (*Cuminum cyminum*), said by some to be a native of Egypt and the region of the eastern Mediterranean, notably Syria, and by others considered to have come originally from Turkestan. It grows only one to two feet tall, the slender stem being abundantly branched from the base and bearing very finely cut leaves and few-flowered clusters of white or rose-colored flowers. The seeds, larger than caraway seeds, are powerfully aromatic and pungent. In Bible times these seeds were used as a condiment with fish and meats, especially in stews, as a stimulant to the appetite, and as a medicine. They were sprinkled on bread and cakes and even ground up with the flour to give a better taste to the bread.

OTHER plants occur in the story of Jesus' life on earth, such as grass, and the lowly bacteria and related flowerless plants that make vinegar, cause the fermentation of wine and leavening of bread, and those that cause the fever, plague, dysentery, and leprosy which he healed, but lack of space forces us to close this brief discussion with the plants most intimately connected with his crucifixion, death, and burial. We have already spoken of the myrrh and aloes used to embalm his body. After his mock trial before Pontius Pilate we read that the soldiers "plaited a crown of thorns and put it upon his head, and a reed in his right hand." There has been much discussion about the plant used for the crown of thorns. Many species have been suggested which could not have been known in Palestine at that time; and others have such stiff branches that to make a crown of them would be virtually impossible. We now feel that the Christ-thorn (*Paliurus spina-christi*) is the plant that best fits the requirements of the text. It is a straggling shrub three to nine feet tall, with zigzag flexible branches and leathery leaves. At the base of each leaf is a pair of very stiff and sharp thorns — one of each pair is straight and about a half inch long, the other shorter and curved. The unusually pliable texture of the young branches renders them particularly easy to plait into a crown-like wreath.

The "reed" which the soldiers gave Jesus to hold as a mock sceptre and with which they struck him on the head has generally been regarded as having been the common reedmace (*Typha angustata*). However, while this plant is common along streams throughout the region it would only have been in full-blown fruit in March or April when the mock trial of Jesus took place.

There are many legends concerning the wood used to make the cross on which Jesus died, but the Bible actually gives no clew to its identity. But we read that just before he was crucified the soldiers gave him "vinegar to drink mingled with gall". This "gall" is considered to have been the juice of the colocynth (*Citrullus colocynthis*), a vine resembling our cucumber which trails on the ground or climbs over bushes by means of its many branched tendrils. The fruit is about the size and shape of an orange, mottled with green and yellow, with a smooth hard rind and soft papery pulp which is intensely bitter and cathartic. It is always employed in the Bible as the symbol of bitter calamity.

Just before Jesus died he cried out in a loud voice and one of the passers-by "ran, and took a spunge, and filled it with vinegar, and put it on a reed, and gave him to drink." This "reed" is now regarded as having been the long stalk of dhura (*Sorghum vulgare* var. *durra*), a grain resembling sorghum or broomcorn. It grows six to twenty feet tall and its thick dry pith is not sweet as in sugarcane. The cane-like stem would have served admirably as a rod on which to fasten the sponge and lift it to the dying man's lips.

And after Jesus' death we read that Joseph of Arimathaea "bought a linen cloth, and taking him down, wound him in the linen cloth, and laid him in a tomb". Linen was the fiber used most commonly by the Hebrews for all their garments that were not made of wool, for the robes of their priests, for their flags and pennons, for string and rope, and for wrapping their dead. For this reason, flax (*Linum usitatissimum*) was always one of their most valuable plants. The Bible tells us how it was grown and harvested, and how it was bleached and the fibers extracted. Even today the countryside in the Holy Land is periodically painted blue with its myriad flowers.

May finds a colorful display along the east path in the Thompson Memorial Rock Garden.

An Invitation to The Rock Garden

By Louis P. Politi

THERE is a place I know, a garden, a lovely appealing garden where Mother Nature, making lavish use of her gifts and handiwork, has created a scene of great beauty and interest.

In this garden colorful mallards nest in early spring and the cock pheasants jar the quiet dusk with their raucous calls. Squirrels and chipmunks, carefree and chipper, gambol the pleasant days away.

A merry little watercourse trickles noisily down a rocky slope through carpets of colorful plants to a charming pond which reflects, in season, the rich colors of the japanese primroses planted behind it.

A shaded woodland walk offers coolness and a quiet place to sit and relax. Here in the sun-dappled shade, you may sit and see the great white blossoms of the trillium, or watch the fuzzy unfolding fronds of the royal fern or, perhaps, listen to the great symphony of the migrating birds.

Flowering plants provide a subdued mass of color, embodying all the hues of the rainbow and each season presents a new and different display. In autumn, brilliant foliage and fruits bring new colors to the landscape.

Yes, this is a garden of perpetual beauty, a little spot where the harried city-dweller may appease his hunger for a bit of peace and beauty. I suppose all of us who love plants and gardens have dreamed of owning some day just such a little oasis of beauty. Some day, when that long delayed ship comes in, we shall finally get that dream place of our own.

Well, you don't have to wait for that ship to come in because this little garden, which I have been telling you about, is your garden. It belongs to you, to you who love the beautiful and the unusual, to you garden lovers and gardeners. We who tend it try so to plant and arrange it that it will give you pleasure.

This little garden is located in the Bronx, only forty-five minutes from Times Square. It is the Thompson Memorial Rock Garden at The New York Botanical Garden, one and a quarter exciting acres of rare and unusual plants. If I may, I should like to tell you a little more about this outstanding garden and its plants.

The Thompson Memorial Rock Garden was constructed in 1932 and designed and executed by two of the staff members at The New York Botanical Garden, T. H. Everett, Horticulturist, and A. C. Pfander, Superintendent of Buildings and Grounds. From April to November, it is open daily including Sunday from 9 a.m. to 5 p.m.

The majority of the plants grown in this garden, with the exception of the tree and shrub backgrounds, are either alpine plants or perennials chosen for their close resemblance to alpine plants. Many of these plants have no love for our lowland gardens

and while some of them can be tamed into some semblance of domesticity, others resist our friendliest overtures and languish or perish in their stiff-necked stubbornness, far from their high-flung mountain aeries.

The majority of true alpines are to be found on high mountain slopes in the region between the tree line and the perpetually snow-covered summits. There snug and dry, they enjoy an uninterrupted dormant period for the greater part of the year. The growing season is short (ninety to one hundred twenty days) and the plants bloom, make their annual growth and mature seed with amazing rapidity. During this season, they are exposed to the full intensity of the sun's rays and dry atmospheric conditions prevail. An abundance of sub-surface moisture, derived from the melting snows upon the peaks, is available to them.

To provide such growing conditions here in New York is impossible. Here our precious alpines do not lie under a warm blanket of snow but are exposed to every vagary of the winter weather, unprotected from the buffets of the vicious winter gales. Their dormant period is extended far beyond normal and just as they do get to sleeping well, presto, the gales abate, the sun comes out and the earth is warmed. Our poor bewildered D.P.'s lift up their heads, survey the situation, decide spring is here and start growing, only to be sadly disillusioned. They never become properly dormant, for their entire growing season is thrown out of schedule. During our summers they fare no better, being fried to a crisp one day by a blazing hot sun and then subjected at other times to humid, cloudy periods with none of the free air circulation of their alpine peaks.

Obviously, the weather is something we can do nothing about. We can only accept philosophically whatever Mother Nature hands out. There are certain things we can do, however, which tend to mitigate somewhat the extreme fluctuations of the weather. Mulching is of value in the summer in keeping roots cool and moist, and in the winter in preventing heaving. Winter covering with evergreen boughs provides protection from wind and sun. The strategic placing of plants in relation to rocks, trees and shrubs is helpful in controlling the amount of sunlight received. Plants which tend to make growth early in the spring may be kept dormant for a longer period by protecting them from early spring sun.

Plants which require the same treatment are grouped together. This facilitates problems such as watering, mulching and winter protection. Top-dressing every spring with a soil mixture is a *must* to replace valuable soil washed from the slopes during the year. In addition, there are the ever-present problems of watering and weeding. The nature of the plants is such that most of the weeding in the rock garden must of necessity be hand weeding, which takes a tremendous amount of time.

A great deal of propagating must be done every year, as many of our rock plants are short-lived in this environment. Most of this propagating is done during the summer by means of cuttings, divisions or by seed.

From time to time, whole sections of the garden must be redone as was the case with the east slope last fall. Background must be rearranged, the rockwork done over, the soil prepared and finally the area replanted.

So you see your garden requires a good deal of attention, care and planning. The finished result, however, is well worth it, at least we think it is worth it. So won't you come out and see your garden, see what we have done and how you like it? Come in April and see the soft golden patches of crocus or the bright blue stars of scillas and chiondoxa. Or come in May and see the garden at its best with great sheets of pink phlox, snow-white candytuft, the dainty fragrant pinks, exquisitely colored masses of polyanthus primroses and many other lovely plants too numerous to mention. Or come in the summer and see the scarlet splashes of *Lobelia cardinalis* or in the fall and see the perfect, harmonious picture made by blue plumbago against the orange berries of pyracantha.

Come when you will, but in any case be sure you do come, for we have worked hard and diligently to make this garden beautiful for you.

The pool at the foot of the cascade is a delightful section of the Thompson Memorial Rock Garden.

The Garden's Supporting Cast

GUNTHER K. ACKERMAN

By Ruth V. Caviston

Gunther K. Ackerman

"The whole is equal to the sum of its parts." We all came across that axiom in geometry class. When the axiom is applied to The New York Botanical Garden, we find that there are many individuals behind the scenes who perform their duties quietly and efficiently, with little fanfare. Such is Gunther K. Ackerman.

Mr. Ackerman's duties take him in to the offices and halls of our Museum Building and out on the grounds as well. He knows and is known to everyone who works in the park. His tall spare figure is familiar to most of The Garden's "regular" visitors, too. They enjoy his penetrating observations, his dry humor, and his friendly attitude. Mr. Ackerman is genuinely interested in people. He listens appreciatively to a mother who recounts her offspring's clever remark, he smiles understandingly at young lovers who stroll idly by, he jokes with the energetic children who dash in and out, and examines the latest "shot" of an amateur nature photographer.

There are many kinds of questions relating to The New York Botanical Garden which Mr. Ackerman can answer. To one man he supplies the name of a staff member who will advise him on the care of a cactus plant. He tells the garden lover about a floral display in the greenhouse and where to find The Garden's outdoor planting that is being featured at the time. He reminds Saturday visitors of the afternoon movie or lecture. In spring he knows the sunniest bench for the young mother who comes in pushing a baby carriage. In summer he even tells the anxious children where they are likely to find the Good Humor man in his rounds of the park.

It is not surprising that Gunther Ackerman is so familiar with the activities of The New York Botanical Garden, if you know that he has worked for the institution more than fifty years. At the time he was employed, both Mr. Ackerman and The Garden were young. They have progressed together.

The Garden's first planting was begun in the spring of 1896 and Mr. Ackerman's father, who worked for the Bronx Borough Park Department, was naturally interested in the new development at Bronx Park. As a result, in January, 1900, when the younger Ackerman was seeking a position, he applied at The New York Botanical Garden. He was hired immediately for the accounting department by the late Dr. N. L. Britton, then director-in-chief. In those days the Ackermans lived in the lower Bronx. The Garden's new employee traveled uptown in a Third Avenue trolley to Fordham, the end of the line, and walked to his office from there. It was some time before the Third Avenue Elevated was extended to Fordham Road and on to 198th Street. When this was done, horse and buggy cabbies, quick to sense an opportunity, used to wait there for customers who wanted a drive through the park. A flat rate of fifty cents was charged for a ride over the dirt roads. It is a cheering comparison to note that today a round trip in our tractor train, the Floral Flyer, over well-surfaced roads, costs only twenty cents. Thus, The Garden's answer to inflation!

Many changes have taken place at The New York Botanical Garden in the last fifty years. Mr. Ackerman has witnessed all of them. He remembers the time when people occasionally got lost in the hemlock grove, because there were no paths through the woods. There was more important construction work to be done in the beginning. Progress was being made on the greenhouses, but the entire conservatory range was not completed until 1902.

Mr. Ackerman was here when our first bridges were built across the Bronx River. He recalls when the aquatic pools were laid in the courtyard of the greenhouses. He remembers the old herbaceous glade, and, of course, he saw the start of the rose garden and the beautiful rock garden.

Mr. Ackerman recalls many of the events that were recorded as news items in the *Journal* of The New York Botanical Garden years ago. For instance, the April, 1911, issue announced the Saturday afternoon spring lecture series and concluded in the following we'll-stand-for-no-nonsense attitude: "They (the lectures) will close in time for auditors to take the 5:35 train from the Botanical Garden Station, arriving at Grand Central Station at 6:03 p.m." And he remembers when The Garden imported eight hundred rhododendron plants. The *Journal* of May, 1911, reported: "A little over a year ago a carload of about eight hundred rhododendron plants was importted from the mountains of North Carolina. These were used mainly in forming decorative plantations in the neighborhood of the West Lake north of the museum."

Although West Lake is no longer within the boundaries of The New York Botanical Garden and the original planting has disappeared, visitors today can see rhododendrons in bloom in an area adjacent to the Museum Building.

DESIGN for SMALL PROPERTIES

By Joseph F. Roesch

ANY satisfactory landscape beautification is usually the result of very careful planning on the part of someone. Too often our home landscape, like Topsy in *Uncle Tom's Cabin* "just growed" for when plants and landscape features are added for their own merit, without considering their effect on the completed picture, the result is a crowded or restless landscape. It is well to remember that anything added or removed in the landscape changes the entire composition.

To meet the family needs for both beauty and utility in the home grounds landscape, it is necessary to make an accurate survey of the personal requirements of those who are going to use the grounds for living. The planner should consider how many persons are involved and to what extent: also the ages and interests of the members of the family should be studied in order to determine how much space and what part of the grounds actually should be developed and to meet a budget and insure adequate maintenance. It is very important to determine at the outset how much time is available for family maintenance, or how much can be spent for part-time labor to care for the grounds properly.

Making a survey of the physical aspects of the project and getting the problem down on paper are the next steps. Blueprints of the construction of the home showing the plot plan and the surveyor's drawing accompanying the deed for the property are very helpful. However, any person with a tape measure, pencil and a sheet of drawing or cross-sectioned paper can make his own map in a few hours. This initial map or base drawing should be drawn to scale, either one-quarter inch or one-eighth inch. In the one-quarter inch scale, every four feet on the property would be represented on the drawing by a one-inch line; in the one-eighth inch scale, every eight feet by a one-inch line. The orientation or position of the property relative to the north, east, south and west directions should be indicated on the drawing. And the drawing should be developed to include the placement and location of all existing and permanent structures, such as the house with its room arrangement, the garage, walks, drives, telephone poles, cesspools and covers; existing trees, shrubs, hedges and fences, and such natural features as water, rock outcropping and land slopes. It is also a good idea to note the features, good and bad, of adjoining properties.

The final arrangement and design of the property is not a one-step operation and, therefore, the basic drawing should serve as a guide for a series of drawings. A good procedure is to lay tracing paper on each completed drawing to make improvements over the previous plan. A series of five or six sketches then, with each one based upon the previous drawing, will give a refinement of ideas and a gradual building up to a final design that should be better than the first plan.

In the development of a landscape plan for a small property, the property is usually divided into three major areas: (1) entrance or public area (2) service or work unit, and (3) the private or outdoor living room.

The entrance or public area, between the house and the street, should be developed with the objective in mind that it compares to the reception room of the home. As it is the first impression that a visitor gets, it should be a good one — with the house appearing in favorable and complimentary surroundings. In the past, the entrance area has been treated as an open area to show off the house to the public. Today, with increased traffic on streets and with picture windows facing them, the possibilities of enclosing this area with a high fence or hedge screen should not be overlooked. Walks in the entrance area should be carefully planned with utility as the main objective, designing the front walk so that it leads directly from the public walk to the front door and joins the building as near a right angle as is possible. However, when the main entrance door is in the center of the building, and a straight walk treatment might cut the front lawn into two small units, it is well to combine the walk with the driveway, and then direct the walk across the front of the house to the door. A curved walk usually appears ridiculous, unless justified by unusual length, topographical changes, or obstacles such as plants and enclosure openings.

A great variety of plants is not essential for the foundation of the building, unless the building is very drab. A simple and selective placement of plants creates a more pleasing composition. Plantings about buildings should (1) form a transition between building and ground — this can be achieved by the placement of plants to break up and soften hard corners; and (2) to enhance the architectural beauty of the building. When the entrance door is the center of architectural interest, it can be enhanced by using the tallest plants at the outside corners of the building, grading down in height from these plants to lower plants under windows and alongside the entrance. Purpose No. 3 is to conceal objectional parts of the building. Most of our modern buildings are built close to the ground, so very little of the building foundation requires screening. Groundcovers or plants which grow close to the ground usually serve this purpose and at the same time blend the whole planting for better unification.

In selecting plants, an effort should be made to carry out the theme of the architect. For instance, small-leaved plants are in keeping with buildings of fine textured materials, such as brick, and with a refinement of details; with buildings of stone or wood, coarse-textured plants may be used. Unity in architecture and planting can be accomplished by using: only a few kinds of plants; plants of good quality; a minimum number of plants; and by restricting the use of specimen plants

of unusual character in the entrance or public area.

The lawn is the canvas for this picture and should be uniform and without blemishes, such as circular planting beds. Unity can be attained by avoiding any plantings or features which reduce its apparent size and spoil its effectiveness.

The service area, like the kitchen of the home, is the work unit of the garden and thus should be carefully located. When it includes the driveway and parking area, its location is almost automatic. The family requirements will determine its size and shape. Any one or all of the following should be considered in its planning. It may be the area for refuse cans, incinerators, compost heap, wood storage, vegetable and fruit gardens, hot beds and clothes lines. When possible, it should be a separate area screened from the street and the portion of the home and grounds used for living. A good surfacing increases the utility of the service area.

The private garden or outdoor living room area should be directly related and connected to the living areas of the home. Access to the garden area from the living room or dining room of the home is preferable to an entrance through the kitchen or service portion.

Before the minute details of the intimate garden can be planned, its framework and main structural parts must be established. This can be accomplished by establishing a skeleton framework of axis lines, which serve as base lines for distributing interest throughout the garden. A major axis line can be developed from a door or window, or from a terrace or both. The major axis might be in line with the walls of the building, or it could be at an angle to carry the eye to some corner of the home ground. A minor axis developed at right angles to the major axis establishes points for secondary interest.

Considering geometric design in contrast to informal development of the outdoor living room, appropriateness and size will help to decide which course to follow. Too often, a beautiful formal or geometric building is spoiled by the use of informal plantings and garden fittings which disclaim any attempt at unity. On the other hand, formal architectural features and geometric patterns are too often employed in natural settings, where their very lines are incongruous to the more natural flowing lines and repose of nature. When the area is very small, the geometric garden with its straight lines and simple compact treatment gives a feeling of spaciousness and actually leaves more area for human use and enjoyment.

No room is a room without walls, neither can a garden be a garden unless it is enclosed with a hedge, plants, or an architectural structure. An enclosed garden insures seclusion and privacy for the owner, and the enclosure also provides a setting for some of the more interesting materials within the garden.

The intimate garden must be designed to satisfy the practical and aesthetic needs of those who are going to use it. There should be a variety of things to do and look at. Passive pleasure should be possible in the restful enjoyment of plants and features amid attractive surroundings. Active recreation should be provided for in the form of tennis or badminton court, putting green, croquet, or other game. In some cases, this is attained by providing a large open lawn, as it is not practical to try for an estate in miniature on the small home grounds.

The improvement of any home grounds is best accomplished by treating it as an individual problem. In this way, the landscape acquires a distinct character all of its own. Copying or adapting another garden seldom satisfies the wants and desires of the people who will use the garden.

The amateur who does his own designing, will find that it pays to develop a plan carefully, and thus avoid mistakes made by hasty decisions. In the words of Edgar Guest, which are directly applicable to the home landscape remember that, "It takes a heap of living to make a house a home."

A careful selection of plants and proper placement around the foundation of the building enhances its architectural beauty. Here tall plants are used effectively at the outside corners of the modern house, lower plants on each side of the door and low plants beneath the windows.

The "Know How" on

AFRICAN VIOLETS

By Roberta M. Ma

So far as I know, no house plant has had as much universal appeal during the last few years as the African violet, *Saintpaulia ionantha*. New varieties have been added to this well-loved plant by hybridizers and physiologists. Many homes and offices have pots of one or another variety of *S. ionantha*. Yet I have been told by more than one person that African violets are hard to grow and they need special care. Consequently, I became interested in investigating the physiological requirements of the African violets in my home and, in the following paragraphs, I relate my experience during the past three years.

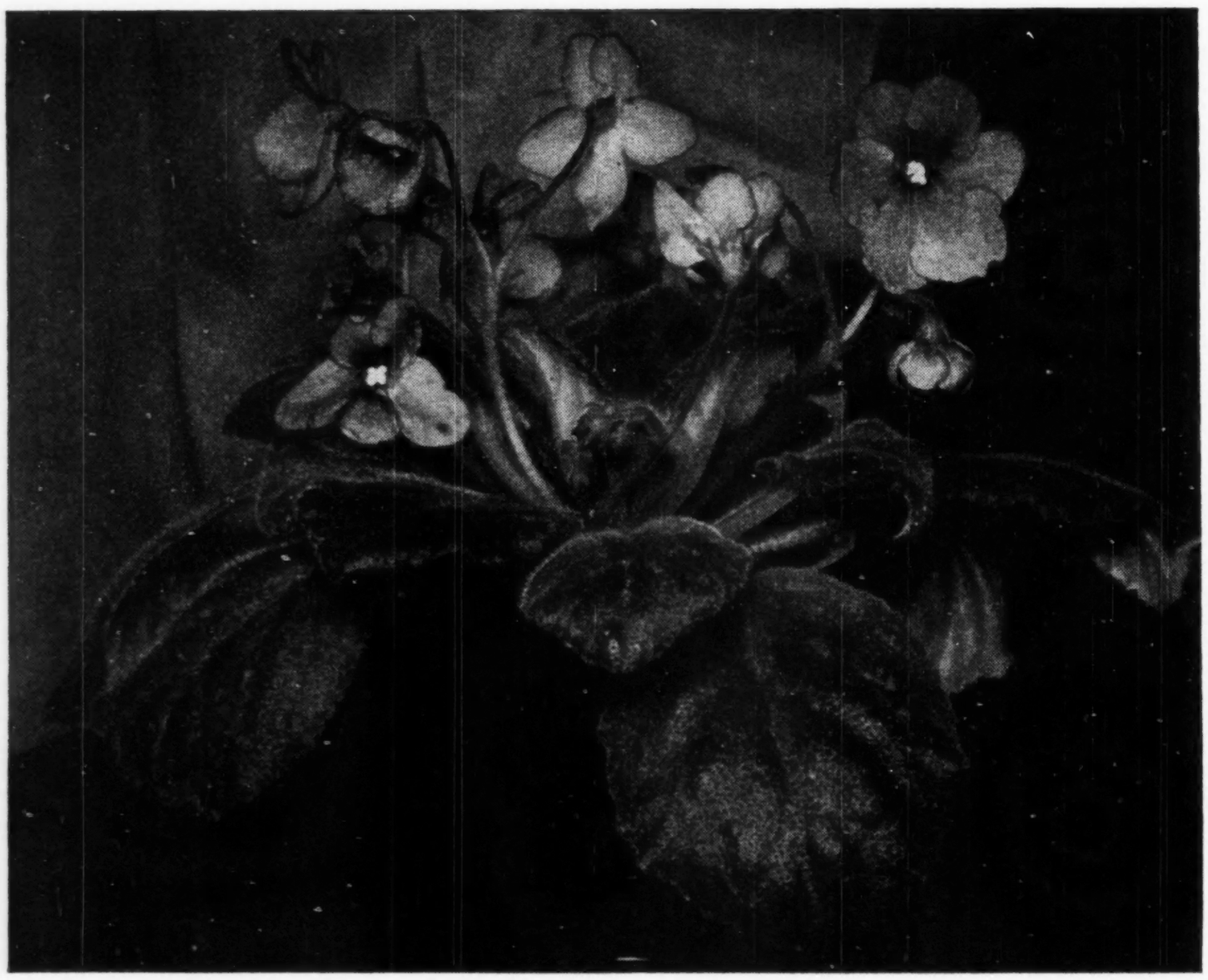
Considering the natural environment where African violets grow, the air must be humid but not soaking wet; the location must be sunny but not too much strong sunshine; the soil must be rich but not too sticky—sandy with leafmold; the temperature must be warm but not too cold or hot. Maryland is sunny most of the time, the air is always humid, the weather is neither too hot nor too cold. In my house, the temperature usually ranges between 60° and 80° F. Apartment houses in winter are often hot and dry, but one room can be made congenial for plant growth, by keeping the atmosphere cooler and more moist. To see that conditions remain favorable, watch the soil and keep it moderately moist and watch the leaves and keep them a good color of green.

African violets need plenty of water and can not be treated like a cactus plant. They should have all the water they need. Either too much or too little water results in trouble: too much water will cause molds to grow and plants may rot and eventually die; too little water seriously limits the flowering and withers the leaves. My practice is to water the plants thoroughly on Monday, Wednesday and Friday, giving the surface of the soil a chance to dry on Sunday to avoid the growth of molds. The soil surface should not be allowed to look dry more than a day. The pots are set in containers from which water may seep into them, thus providing a nearly natural condition. The water should not be colder nor hotter than one's hand. In the winter, tap water should be warmed to take off the chill. If the water contains too much chlorine, as it does in New York City, then it should be boiled and cooled to the temperature of one's hand before being used on the plants. Or it could be drawn from the tap and allowed to stand in a container for forty-eight hours before being used. Chlorine in water often stops the blooming of African violets.

As African violets are very tender, putting cold water on leaves when the sun is hot will develop white spots. I have no white spots on my plants, because I usually water the plants in the early morning. The pots should be washed with water at least once during the summer to avoid the danger of fungus spores developing on them.

To ensure African violets flowering generously and continually, sunshine is an important factor. During weeks of dark weather, my African violets take a rest and resume blooming as soon as sunshine comes into the windows daily. African violets need moderation, thus during the days when the weather is the hottest, the number of blossoms is reduced considerably. They usually bloom from the middle of August to the end of June, provided there are only a few dark days.

I have put my plants at the east window, west window, and the diagonally north window, though I have not tried the south window. They do equally well in all three locations. Presumably the south window would be just as good. Too hot sun, however, in the west side window does cause yellow-



African violet Red du Pont

African violet Pink Beauty

ing of the leaves. By using a small mesh window curtain to diminish the hot summer sun in the afternoon for a few days, I have been able to retain the beautiful green color of the leaves.

During the winter, there is not as much need to worry about African violets getting too much sun; but care should be taken that the cold near the window does not injure the plants. Although flowering will cease if the plants are too far from the light, it may be necessary to move the plants away from the window in winter, or to place a protector between the plants and the window panes at night.

African violets do not require rich food. Too much fertilizer will make the plants grow lush and tend to postpone the blooming. If the soil becomes caked or covered with green scum, the surface of the soil should be stirred for aeration.

In experimenting, I fed one lot of African violets with Vigoro (one tablespoonful to a quart of water and then diluted with water, 1:1) once every three months, by filling the containers below the pots with the diluted solution. Another lot, I watered once a week with washings from the milk bottle (about one teaspoonful of fresh milk to a quart of water) on the soil between the leaves. There seems to be no decided difference whether the plants are fed with Vigoro or with milk — they flower equally well and grow equally healthy.

African violets are easily grown from seeds, and they are readily propagated from healthy, mature leaves any time of the year. The best results, however, are obtained from rooting the leaves in the spring. They may be rooted in water, in sand or in soil. A young plant is developed right at the cut where the roots start. A single leaf with a long petiole may be rooted several successive times, producing a number of healthy plants. Leaves with a short petiole will give only one plant, though sometimes two plants appear.

I have tried several different ways to hasten the growth of the roots. Using indole-acetic acid 1 p.p.m. and soaking the roots for thirty minutes give more satisfactory results than indolebutyric acid of the same strength. Plain tap water, in my experience, is better for rooting than distilled water. The accompanying table shows some of the results: see page 90.

When the roots, which have been growing in water, are about one quarter to one half inch long, the plants are transferred into ordinary sandy soil in pots one and a half inches in diameter. The pots are set in water containers which furnish moisture for the primordia of the plants. In several weeks, depending upon the time of the year, a firm, well-developed young plant will appear. When the young plants have reached about an inch and a half high, they are ready to be transplanted into pots three and a half inches in diameter.

A soil mixture which has been recommended for this potting consists of two parts of compost, one part of sand and one part of leafmold; if the com-

(*Continued on page* 90)

African violet Orchid Beauty

THE BE
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AT SA

By F. H

(Translated from the P

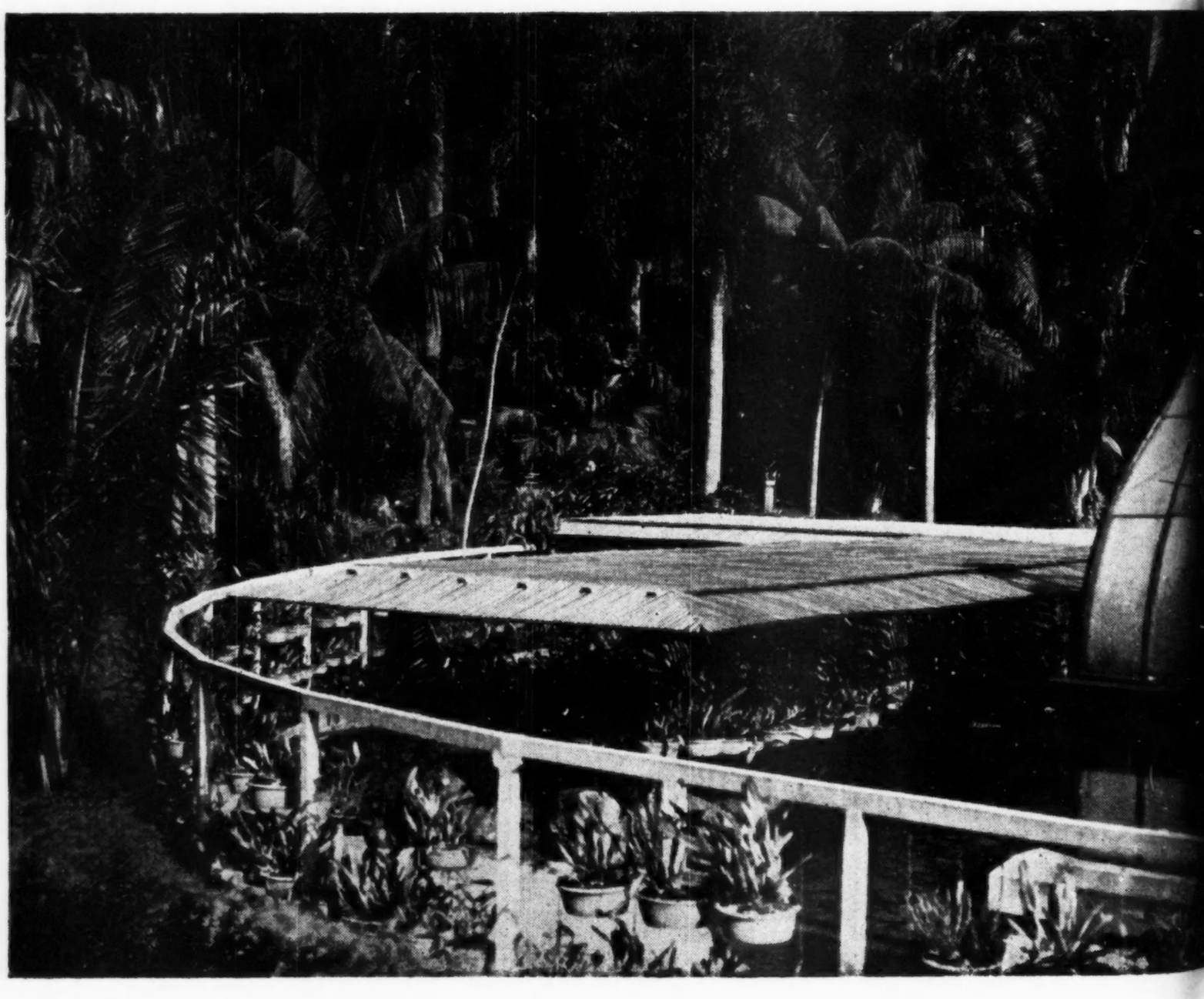
***Amaryllis procera* (*Worsleya Rayneri*) with handsome violet-blue flowers.**

Let us make clear that in reality there is nothing here which truly deserves the name of "Botanical Garden". There is only the beginning of a botanical garden and the will to make it succeed. The program is drafted along general lines and is relatively broad. The twenty years since the birth of this idea have been filled with difficulties, due to the conditions prevailing in the world, and for this reason, the goal remains very distant. The program is progressing, however, in the way the bud of a flower begins to split its segments and reveals a little of the splendor and the colors which the interior encloses. A botanical garden of scientific usefulness, moreover, is not constructed, as a park or a public garden is made, for solely esthetic ends. The botanical garden must be planted and arranged slowly, with a constant eye on that distinguished teacher, nature.

In the Botanical Garden of São Paulo, nature provided the essentials for the objective in view: an irregular terrain, springs of water, woods and natural plains. The land in question is a forest reserve which the Secretary of Agriculture decided, in 1940, to divide into three departments: animal husbandry, an astronomical and geophysical observatory, and an institute of botany. The latter was left with the greatest share, that is, two million square meters, more or less.

For those who know how to appreciate the accomplishments of nature, the Botanical Garden of São Paulo is magnificent because it serves as a repository for the floral regional documents of what was once the village of Piratininga. Moreover, it is interesting on the historical side because it is the source of the famous stream of the Ipiranga, on whose banks, near low water, was proclaimed the independence of Brazil. Through this region there must likewise have passed one of the native trails by which the first immigrants — outstanding among whom was Martin Alfonso de Sousa, founder of the village of Piratininga ascended from the coast of São Vincente to the plateau. The conservation of this forest reserve was begun by Dr. Fernando Costa and Dr. Julio Prestes, and for us remained the task of launching and spreading the idea of the botanical garden many years later.

In the center of this region there is an elevated terrain, with a rustic "Belvedere", from which may be obtained a view over the forest. Although of secondary formation, it appears as an agitated sea when seen from above. Interlaced branches form a marvelous canopy under which rise and spread tree-ferns, shrubs and plants representing hundreds of species but the branches and the trunks are also laden with epiphytic guests representing Araceae, Bromeliaceae, Pteridophyta, Bryophyta, Melastomaceae, Rubiaceae, Solanaceae, Orchidaceae, Gesneriaceae, Cactaceae, Begoniaceae and other native families. Climbing vines spring over the trunks and dominate some of the tree-tufts, opening beautiful corollas, as only the Bignoniaceae, Leguminosae, Apocynaceae, Convolvulaceae, Malpighiaceae and Trigoniaceae know how to create them.



Partial view of the pergola in which are grown cattleyas and laelias between and behind the greenhouse; in the background, the palm collection.

BEGINNING
TANICAL GARDEN
SAO PAULO

y F. Hoehne

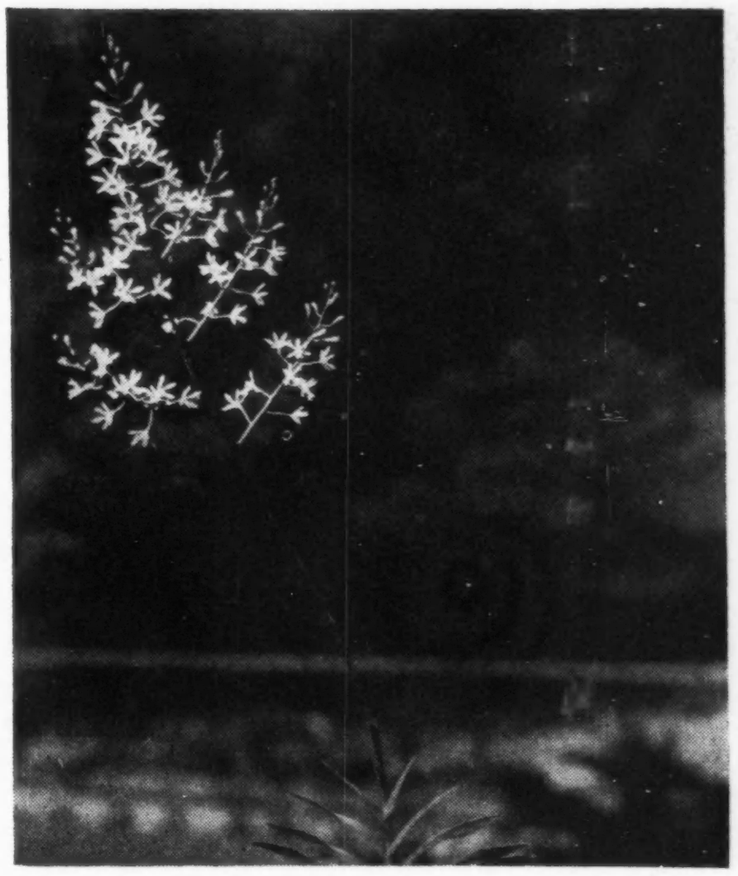
the Portuguese by Elsie M. Fuggett)

Zoology, too, has an extensive field for biological studies in this reserve. There are bands of monkeys which live on the wild fruits and tender leaves of certain trees. Foraging deer come at night to graze in our grasslands, and pacas, wild dogs and other mammals live there, too. The number of birds is very large. There, tangaras perform their famous dances, singing under the direction of a leader. Orioles trill their high-pitched notes, bands of nectarinias and many small singing birds, like beautiful hummingbirds, vie with one another to give life to the forest which is rich in insects of hundreds of species.

Among these wild surroundings, the Institute of Botany has built its headquarters. Round about these headquarters is the already cultivated part which the general public appreciates most, because preference has been given to the Orchidaceae. For this reason, many call the Botanical Garden simply the "orchid-house" and visit it for the opportunity of enjoying the satin-smooth petals of cattleyas, laelias, oncidiums, miltonias and other tree-dwelling plants. They admire the two large greenhouses intended for typically hygrophilous plants; they seek the pergolas or shed-like structures and the pontils where the representatives of the "Flower Queens" make their appearance. They all declare the greenhouses are marvelous. We ourselves shall not say so, because we need at least eight the size of the two present ones to cultivate successfully all the wonderful plants of the forests and plains which we have examined in our protracted trips into the interior of our country.

The writer and poet, Dr. Alfonso Schmidt, has written these lines about the two greenhouses:

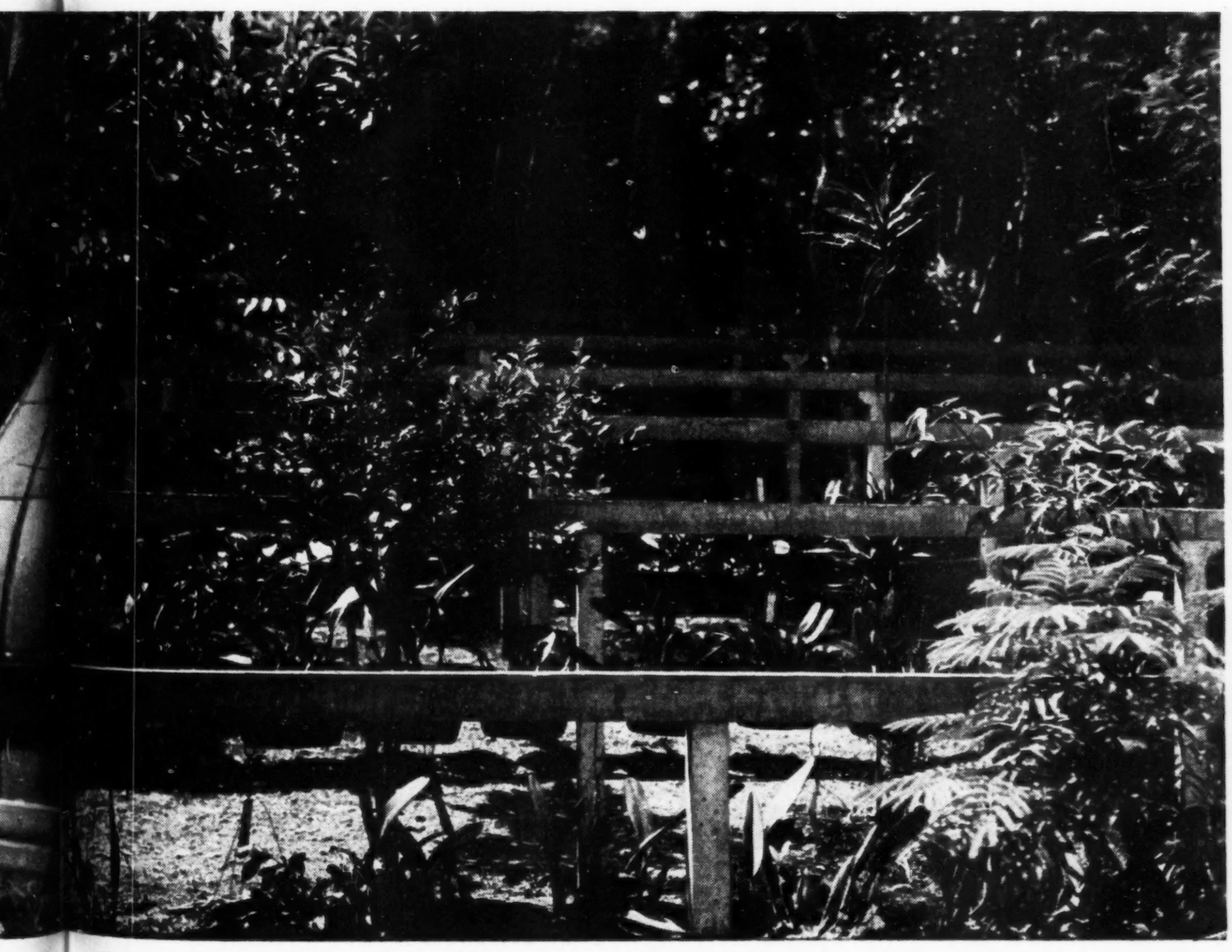
"When I became acquainted with the orchid-house, it had not yet been completed. Of scientific and educational value, and popularizing the marvels of our flora, it could not then be visited by all persons of discernment, especially by those who had no automobile at their disposal, since at that time there was no easy transportation to that locale, where man's intelligence collected patiently, in two glasshouses, the casket of jewels which the nights of November, of fogs and of stars scatter over the slopes of the coastal mountain-chain.



Inflorescence of *Catasetum fimbriatum* from a plant grown by the author.

"Entrance into the orchid-house was permitted only on Sundays and holidays. Visitors were rare. During the day, however, there were always automobiles lined up in the middle of the central part of the Garden. Ladies and gentlemen, walking through the place, peopled the solitude and shattered the silence with exclamations. We saw them crossing the shadow projected by the greenhouses, or sitting in the corner of the staircases, below which were immense stone urns overflowing with green garlands and letting fall perpendicularly over the steps of gold the coagulated blue of wonderful climbing vines.

"I wandered near a greenhouse. The small ventilator window had the curtain drawn. I ventured a look into the interior. I saw the forest of the Serra do Mar in miniature. I turned around



Reinforced concrete beams for hanging pots of orchids, sheltered by the native trees and nourished by falling leaves; reserved for ecological studies and observations and for promotion of natural dissemination.

Headquarters of the Institute of Botany in the Botanical Garden of Sao Paulo; in the foreground, the roof of the Dr. Joas Barbasa Rodrigues Botanical Museum.

and an attendant allowed me to enter. Inside, I felt myself enveloped by the warmth coming from the shore. An odor characteristic of dead waters, of mosses, of lichens, of a thousand anonymous corollas. That tiny forest was in bloom, completely in bloom. From the roof were hanging baskets of plants the stems hollow and light, the branches twisted. Below, in pots of xaxim from perforated rocks, were spurting maiden-hair ferns and *samambaia,* from which "cangalhas" or yokes are made in Brazil, all this in riotous festival, all in the primeval splendor of the *Laelia, Cattleya, Oncidium, Miltonia, Brassia, Bifrenaria, Zygopetalum, Rodriguezia, Gomesia, Stanhopea, Encyclia* and *Epidendrum,* all an "esperanto" of whites or purples, of sharp points or shadows.

"In the second greenhouse, there was not such variety. There were, however, extravaganzas of begonias, maiden-hair ferns, mosses and algae. The waters were asleep. The bees that had been allowed to enter were buzzing. And when a petal fell like a drop on thè sleeping water, the mirror-like surface wrinkled and upon it were mingled all the colors of all the reflections. We owe this achievement to Dr. F. C. Hoehne, a scientist who is a poet. Instead of composing verses, he plants Orchidaceae."

We have taken the liberty of changing the tense of the verbs, because almost ten years have gone by since the poet wrote it; and when he wrote it, the conditions mentioned were already quite different. The public has access to the Botanical Garden on all working days, Sundays, and holidays as well, except on Mondays and Fridays and on national holidays when work is forbidden.

Here is what Dr. Mulford B. Foster, of Orlando, Florida, U.S.A., has written and published in his book: *Brazil, Orchid of the Tropics,* which appeared in 1945:

"The artist-stone mason in Dr. Hoehne has worked overtime here to create as perfect a little paradise under glass as you can imagine. Beautiful rocks, naturalistically arranged around pools and paths, make this a delightful retreat for jungle-loving flora which, we are sure, hardly know they have been moved. Against a background of palms and tree ferns, aroids, orchids and bromeliads, calatheas and anthuriums, and dozens of others twine or drape all over the rocks or hang in festoons from great baskets."

The comparison of the interior of the greenhouses with miniature forests gave us the assurance that we had realized our aim. The idea was simply to provide the visitor with a miniature of what Brazil has to offer on a large scale in the high rocky sierras of our native state, Minas Gerais, with types of the hygrophilous flora. The execution of this plan was not easy. The first difficulty was to convince the engineer that the interior structure of the greenhouses had to conform entirely to our specifications, and that it was necessary to transport native rocks from a great distance so that the structure might represent as faithfully as possible what nature creates in the rocky sierras with the aid of hydrometeoric agents and wind effects. The structure built, in fifteen days we succeeded in presenting it complete with the plant covering. Having gone this far, the rest became easy, because our idea had been translated better in the completed entity than would have been possible with words or a diagram.

These two greenhouses of which we are speaking were constructed to contain typically hygrophilous plants, that is, lovers of an environment in which constant humidity prevails in the atmosphere, at least during a great part of the day.

There should be six other houses to correspond to the other climates peculiar to Brazil. Two of them would have the internal and external conditions of a typically warm, hydrophilous environment; two others would have structures suitable for plants of cold climates; and finally the last two would furnish, by means of controls and arrangements, the ideal surroundings for xerophilous plants, i.e., plants liking a medium dry environment as do many fleshy plants, such as Cactaceae, Asclepiadaceae, Crassulaceae.

Due to lack of financial means to attain the ideal, less expensive installations were resorted to. Artistic pergolas between and behind the two greenhouses were built, and the ground was covered with rocks and hotbeds for producing humus and evaporation. In this way, growing conditions were obtained suitable for the herbaceous perennial plants which need a diffused light with better temperature and protection against the direct sun and against the strong winds. Since epiphytic plants are so interesting, these pergolas contain hundreds of suspended clay pots, while ground beds are filled with terrestrial and humus-dwelling Orchidaceae. *Laelia purpur-*

Erythrina speciosa* serves as a support for *Oncidium varicosum Rogersii* and *Laelia pumila praestana.

ata and *Cattleya intermedia* form an admirable display in the month of November. In December, they are replaced by *Laelia tenebrosa* and *Laelia crispa*. In January, by *Laelia xanthina, Cattleya Leopoldii* and *Cattleya guttata*. In March, by *Cattleya bicolor, Cattleya labiata vera*. In April also appear *Cattleya Loddigesii* and *Oncidium varicosum Rogersii*.

Meanwhile, in the interior of the greenhouses then appear the daughters of the forests of the Serra do Mar: *Maxillaria* in tens of species; *Pleurothallis, Octomeria, Gomesia, Masdevallia, Miltonia* and other genera, in an incalculable profusion of species which the eyes of the true orchidologists appreciate more than the large flowers of the first type mentioned. Indeed, examined with a lens, these flowers, even the smallest among them, reveal marvelous structures and colorings artistically combined. Arranged in mesological conditions which reproduce the moderate environment in which they grow, these plants thrive.

Prominent in the two greenhouses are specimens of begonia, of which more than fifty species are cultivated, almost all native to the Serra do Mar. There are species of begonias which are intermingled with maiden-hair ferns, and others which attain a thick, woody trunk of three to four meters in height. Still others are climbing plants, which cover, literally, vast areas. Selaginellaceae are present in numerous species and are intermingled at times with the hepatics and the mosses. *Alocasia cuprea* compels the admiration of the visitors with its coriaceous leaves, which remind one of the shell of a turtle.

For ecological research, there is a special corner for the cultivation of Orchidaceae, Bromeliaceae and other plants. The shade and the nutritive materials for these plants are furnished by trees whose growth is controlled, so that the same degree of light may always be maintained. More than three thousand pots with Orchidaceae are suspended from reinforced concrete beams, at heights convenient for the usufruct of the organic effluvia of the plants and of the soil, and so that they may be constantly examined for the possible appearance of harmful insects. The entire struggle against entomological and cryptogamic plagues is carried on by manual process, without the use of insecticides or fungicides which are always harmful to the Orchidaceae.

Unfortunately, São Paulo does not possess a climate suitable to the cultivation of palm trees. The frosts on this plateau are very harmful to them. Nevertheless, we have a collection of more than thirty species, outstanding among them being the royal palms, *Roystonea regia* and *Roystonea oleracea,* for their beautiful appearance, and *Arecastrum Romanzoffianum,* for its rapid growth and wavy fronds.

A small hydrophytorium with eighty-two divisions possesses the essential elements for carrying on hydrobiological researches, especially observations of relationships existing between insects and plants. Thus materials of algae and of carnivorous

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Part of the lake on the way to the greenhouse on whose bank the hydrophytorium was built.

THE ROYAL POINCIANA

which really isn't a poinciana at all!

By Edwin A. Menninger

THE glory of our Florida landscape in May and June, and one of the joys of creation, is the thirty to fifty foot, umbrella-topped tree that we insist on calling the royal poinciana, although it actually does not belong to that genus. But if a rose by any other name would smell as sweet, then the only thing that counts with this native of Madagascar is the cloud of gorgeous crimson or scarlet flowers that swathe its massive top for weeks through the early summer.

Festivals mark the blooming. Housewives cherish the individual blossoms for table bouquets and whole communities preen themselves when a giant royal poinciana, well placed against a solid dark green background of *Casuarina* or mango trees, bursts forth in such elegance and profusion as to stop passing automobile traffic — and that often happens in Florida.

The botanical name for the royal poinciana is *Delonix regia,* and despite our wishes in Florida, the accepted common name for the tree through most of the tropics is flamboyant tree. Since discovery of the tree a century ago by Bojer, it has spread to every frost-free area of the globe. In India it is called peacock flower, flame tree or *Guli-Mohur,* which adds color confusion because that means "flower of gold" in reference to an Indian gold coin. Lancaster explains that the tree is "wrongly" called the "gold mohur" and continues: "The original vernacular name for this tree was *Gul Mohr,* peacock's tail, but it became anglicized to mean the golden coin. No amount of argument will correct the error, so Gold Mohur must this tree be known to the end of the chapter." In Malaya, the tree is called "Flame-of-the-Forest", which confuses it with the related red-flowered, Indian *Butea frondosa.*

There are, botanically, *Poinciana* trees but they are smaller in stature, and the leaves, flowers and seed pods are much smaller; they are strictly tropical American, and technical distinctions separate them from what we call the royal poinciana.

The royal poinciana at Miami, Fla.

Delonix is a genus of three species in East Africa, Arabia and parts of India, but *regia,* the royal poinciana, is the most beautiful of them all. The "white gold mohur" (*Delonix elata*) is a pretty, nearly evergreen timber tree that is planted in avenues in Madras. In Kenya, "at commencement of the rains in November, it produces large, very handsome white and yellow flowers having long red stamens." These turn orange as they fade. The tree is cultivated as an ornamental throughout India, where it flowers from August until March and efforts have been made recently to establish it in the United States. If successful in Florida, this tree should bloom during the winter tourist season.

The royal poinciana blossoms individually are five-petalled, shaped somewhat like a cattleya, measure three to five inches across, and are faintly scented. They come in clusters with the earliest leaves on new shoots after a dormant period, so that the large but graceful flowers thus appear on a pale green feathery background before the crown is heavy with foliage.

The erect top petal (called "the standard" by botanists) is up to two inches wide, white or pale pink streaked with crimson, with a very broad, wavy crimson border, a yellowish center and a reddish stalk that fades yellow. The ten bristly stamens are red, white at the base. The other four petals are scarlet, one and a half inches wide, definitely clawed.

There is marked variation in the flower color on different trees, from crimson and scarlet to orange. A primrose-yellow has been reported from Africa. Neal in her book, *In Gardens of Hawaii,* observes that the crimson flowers have a white spot on "the standard" petal, whereas this spot is yellow on scarlet or orange flowers. Whether these color differences are varieties or whether they are brought about by soil conditions which may be changed at will, remains to be proved. The personal correspondence of Capt. Ross Parker, U. S. N. (ret.) reveals that the natives in New Caledonia are reported to alter the color of the flowers by additions of pigments to the soil.

The individual flowers are not fully open until about 9 a.m. and they last only two days. The "standard" curls up and fades on the evening of the first day.

The blooming period in Florida is rarely as early as April or as late as September. In Hawaii, the flowers can be seen for about nine months, from January to September but are at their best in June and July. According to Corner's *Wayside Trees of Malaya,* the seasons are not marked enough in Malaya to induce gregarious flowering, and so every royal poinciana tree follows its own rhythm of leaf change and flowering at intervals of seven to ten months. An avenue in Malaya, therefore, has trees blooming at different times throughout the year and there is no month when some trees are not in bloom.

(*Continued on page* 87)

John Clayton — Virginia Botanist

By Clyde Eddy

On October 14, 1950, a wrought iron memorial marker in honor of John Clayton, noted botanist (1693-1773), was unveiled on the site of Windsor Farms, near Soles, Virginia, his home for many years. The event was the culmination of many months of planning and research by the memorial committee of the Mathews Garden Club, headed by Miss Georgien Mogford. — The Editor.

Soon after Miss Mogford invited me to participate in today's ceremonies, I visited the library of The New York Botanical Garden, in New York, in search of information concerning Clayton. I was shown a leather-bound copy of the book *Flora Virginica,* which he wrote in collaboration with Gronovius, of Leyden, Holland, in 1748. It is unfortunate that Gronovius is given so much credit for the publication. All the specimens were supplied by Clayton and the botanical descriptions were written by him. The plants were merely classified by Gronovius, with the aid of the Swedish botanist, Linnaeus.

When I told Miss Hall, the librarian, of the project to erect a marker at Clayton's old homesite here in Mathews County, she placed before me many scientific journals describing and praising Clayton's work as a botanist. But I was interested chiefly in Clayton as a man and was surprised to learn that practically all we know about him is contained in a brief biographical sketch published in the Philadelphia Medical and Physical Journal in December, 1805. I remarked on this scarcity of biographical material. The librarian then called Dr. H. W. Rickett, the bibliographer, and, together, they made a careful search of the Dr. John H. Barnhart botanical biographical card file — probably the most complete file of its kind in the world. They found nothing more and told me that Dr. Barnhart had noted on one of his cards, "Too bad more is not known concerning Clayton's life."

The botanical specimens collected in Virginia by John Clayton more than 200 years ago — some of them within a mile of where we stand today — still are preserved and may be seen and studied in the British Museum in London. S. F. Blake, an American botanist, did study those dried specimens a few years ago and wrote concerning them, "This herbarium is of extreme importance as affording the chief basis of perhaps the greater number of North American plants published in the *Species Plantarum*". The *Species Plantarum* referred to by Mr. Blake, as you know, is the book by Carolus Linnaeus, the great Swedish botanist, upon which the binomial system of botanical nomenclature has been founded.

Clayton, perhaps, is better known in Europe than in the United States. James Britten, in the London Journal of Botany, wrote in 1909 that Clayton's "collection of Virginia plants may be regarded as the foundation of our knowledge of the botany of that region."

John Clayton was one of the world's greatest — and most neglected — botanists. He was a pioneer, explorer, discoverer. From his home here in present Mathews County, he traveled over most of Virginia east of the Blue Ridge Mountains. His specimens of Virginia plants were the first of their kind made known to the science of botany. His name is indelibly linked with the names of many plants that he discovered — the well known interrupted fern, for instance, *Osmunda claytoniana;* and the delightful spring beauty or *Claytonia virginica.*

It is time we rediscovered Clayton and our thanks are due to Miss Georgien Mogford, of the Mathews County Garden Club, whose project to honor Clayton has finally come to fruition. Our thanks, too, are due to Miss Jessie Hopkins, who designed the marker we have just unveiled.

The Journal of the Philadelphia Botanical Club, on file in The New York Botanical Garden library, describes two trips made to the site of Clayton's home by members of that society — one in 1912, and the other in 1924. In September, 1912, a group of club members tried to find Clayton's home and the court house where he was employed as a clerk. But the roads were bad in those days and it was difficult to get around. "A house," they wrote later, "was pointed out which tradition said was Clayton's. The old court house was in ruins, the surroundings a wilderness". What a way to speak of any part of Gloucester County!

The second group of Philadelphians made the pilgrimage to Clayton's home in 1924. In September of that year, Dr. Edgar T. Wherry discovered a purple-flowered species of chelone (commonly called turtlehead or snakehead) near Hills Bridge, in Ann Arundel County, Maryland. Up to that time, except only for a single specimen of the purple-flowered species that had been collected by Clayton in Virginia and sent by him to Linnaeus 175 years before, no plant of that species had been discovered east of the lower Ohio valley. The plant was "lost" in the sense that there were no specimens from Virginia or Maryland in any American herbarium and no data as to whether it was still growing in any locality in this part of the country. As a result it had never been possible to compare specimens from the type region (Virginia) and from the central United States, to ascertain whether they were identical or not; but its rediscovery on the eastern coastal plain now made possible direct comparison.

"It was then in order," wrote Dr. Wherry later in the club's journal, "to try to rediscover Clayton's original locality" for the purple-flowered species. "There being no railroads in Gloucester County," he continues, "and the roads having until recently been none too good, modern botanists have neglected visiting Clayton's old collecting grounds; but with the advent of the hard-surfaced road and the motor-bus, transportation there is no longer a serious problem. We had a comfortable ride one afternoon from

Lee Hall, on the C. & O. Railroad, to Gloucester Court House where we spent the night at the local hotel. The next morning we hired an auto to take us eight miles northeastward to Soles in Mathews County, where Clayton had lived. His house, which had been located one-half mile southwest of that place, proved to have entirely disappeared, although Mr. Nathaniel Leigh, who lives in a modern building on the property, informed us that he had struck the old foundation stones while digging in the yard.

"Soles is in the northwestern part of the Mathews quadrangle of the U. S. Geological survey and in looking over this to see if any habitat likely to yield turtlehead occurred in the vicinity, we noted the symbol indicating 'fresh marsh' north of Burke Pond, not far from the site of Clayton's house, so we at once investigated there. After a couple of hours in searching the swampy areas, which fortunately were nearly dry at the end of a hot summer, we came to a colony of purple-flowered turtlehead barely half a mile west of the old Clayton place. From there southward along the valley of the North End Branch for a mile and a quarter to the tidal marsh at Fort Nonsense, the same species was found to occur, in scattered patches, in both Gloucester and Mathews Counties. When collecting specimens in the neighborhood of his home, Clayton could not have failed to become acquainted with this striking plant, and it would seem far more likely to represent his purple-flowered species than anything from a more remote region. So we had 'the thrill that comes once in a lifetime' — we had rediscovered a plant lost to science for one hundred seventy-five years!"

THERE were many other references to John Clayton in the material placed before me in the library of The New York Botanical Garden but there was only one biographical reference—the few pages I have spoken of before, written by Dr. Benjamin Smith Barton, himself a famous botanist and editor of the Philadelphia Medical and Physical Journal. This is substantially what Dr. Barton published in his journal in December, 1805:

Mr. John Clayton, the botanist, was born at Fulham, in the county of Kent, in Great Britain. He came to Virginia, with his father, in the year 1705, and was, most probably, then in his twentieth year. His father was an eminent lawyer, and was appointed attorney-general of Virginia.

Young Clayton was put into the office of Mr. Peter Beverly, who was clerk for Gloster-county, in Virginia. He succeeded Mr. Beverly as clerk of that county, and filled the office fifty-one years. He died on December 15, 1773, in his eighty-eighth year.

During the year preceding his decease, such was the vigour of his constitution, even at this advanced period, that he made a botanical tour, through Orange-county. It is believed that he had visited most of the *settled* parts of Virginia.

He left behind him two volumes of manuscript, neatly copied and prepared for the press; and a mounted collection of dried botanical specimens, of folio size, with marginal notes, and directions for the engraver, in preparing plates for his proposed work. Mr. Jasper Clayton, grandson of the botanist, says that this work, which was in the possession of his father, when the revolutionary war commenced, was sent to a Mr. William Clayton, clerk of New-Kent, as a place of safety against the invading enemy. It was lodged in the office, with the records of the county. An incendiary put a torch to the building, and thus perished, not only the records of the county, but the labours of Clayton.

When anyone (said the very respectable Governor Page, of Virginia) described to Mr. Clayton, what he thought to be a newly-discovered tree, shrub, plant, or flower, he would, in a modest manner, say, "Did you not find it in such a county, and in such and such a place?" On being answered that it was found in that very spot, he would add, that it was called by the Indians (I have been told) so and so; by them used for such and such purposes, and may be found described in such a class of Linnaeus. And sometimes I have heard him say, it was described by Theophrastus, and called, by him, by such a name, in Greek. And such was his desire to obtain a complete knowledge of the plants of Virginia, that, notwithstanding his great parsimony, he would offer a reward for any discovery of a plant unknown to him. There seemed to be no part of the learning of his day (I mean about the year 1773) unknown to him; and he had a high relish for witty conversation, and classical allusions, which his son, the doctor, and Mr. Fontaine, the minister of his parish, often highly gratified.

Mr. Clayton "was a strict, though not ostentatious, observer of the practice of the church of England; and seemed constantly piously disposed. I have heard him say, whilst examining a flower, that he could not look into

The wrought-iron memorial to John Clayton, designed by Miss Jessie Hopkins, features two plants which botanists named for him: *Osmunda Claytonia*, interrupted fern, and *Claytonia virginica*, spring beauty.

one, without seeing the display of infinite power and contrivance, and that he thought it impossible for a botanist to be an atheist."

Mr. Clayton is chiefly known to the learned, especially in Europe, by the *Flora Virginica*. The first editon of this work appeared at Leyden, in the year 1748; a more complete edition was published, at the same place, in 1762. This truly valuable work is very frequently referred to by Linnaeus, and by all the succeeding botanists who had occasion to treat of the plants of North America. It is to be regretted, however, that they so frequently refer to the *Flora* as the work of Gronovius, though its great value is derived from the masterly descriptions communicated to the Leyden professor by the American botanist, Mr. Clayton.

As a practical botanist, Clayton was, perhaps, inferior to no botanist of his time. His descriptions of plants are, in general, so correct, that it is scarcely possible to remain in doubt concerning the precise species which he describes. This is especially the case in the latter numbers which he transmitted to Gronovius: for he now had become better acquainted with the system of Linnaeus, besides enjoying that increasing facility in accurate description, of which none but the progressive naturalist can form a correct idea. So long as the science of botany shall be cultivated (in America at least), the services of Clayton will be gratefully remembered; and I shall consider it a duty incumbent upon myself to preserve, in every case, his original descriptions in my intended account of the plants of the rich and extensive country of Virginia, in exploring which I have ever experienced sensations of a pleasurable kind when I reflected that I was treading the grounds which Clayton had so often passed before me.

The brief article in the Philadelphia Medical and Physical Journal of December, 1805, contains practically all that we know for sure about Clayton. Yet, John Clayton can never be forgotten, nor does he need man-made monuments to his memory. The graceful interrupted fern, growing in a million shaded glades, will keep his memory green. The sprightly spring beauty will always remind botanists, at least, and all wild flower lovers, of the life and work of the gentle Virginian who sent the first dried specimen of the plant to Linnaeus two centuries ago. Other plants that Clayton introduced to botany will keep his memory fresh in the minds of men—I cite the modest, patient turtlehead, for instance, that waited 175 years in a nearby swamp to remind the world again of him. But, there should be man-made reminders too and there is no better place for one than here where he lived and did much of his collecting. It is not he, however, so much as we who are honored today as we dedicate this roadside marker to John Clayton—distinguished citizen of Virginia and "one of the fathers of botanical science in America".

The Royal Poinciana

(*Continued from page* 84)

During cold winters in Florida, the royal poinciana trees are virtually bare of leaves for two months. Then they have a tendency to be ugly because the two-foot, flat, black seed pods hang on and the tree has the faculty during this period of pruning itself, killing and dropping whole branches that clutter the trunk or fail to conform to the umbrella-shaped crown. But if pods and shed branches are kept removed, the tree is not unsightly, grass will grow under it with persistent effort, and the effect is desirable in a large garden or park. Unfortunately, too many persons try to grow the royal poinciana in small yards with disastrous effects. Despite the great span of the crown, the roots are strong enough to prevent the tree being blown over in hurricanes; it just sheds its leaves and lets the wind whistle.

The royal poinciana is fast growing, in good soil sometimes reaching twenty-five feet in four years. But it grows in almost any well-drained soil and does particularly well near the sea. It will not tolerate shade from other trees. It can be grown from cuttings and this method or grafting should produce more satisfactory flowering results than are frequently obtained from seedlings. Occasionally, seedlings fail to bloom for ten years.

THE enthusiasm for the royal poinciana, which residents of all tropical areas feel, is very well expressed by Ida Colthurst:

"The leaves with eight to twenty pinnae are handsome in themselves, but drop away during the cold season, and for some weeks after this shedding the trees are extremely unsightly; then, Cinderella-like they almost spontaneously burst into gorgeous scarlet and vermilion masses, bizarre fountains of flame, tossing their laden branches in every direction and best described by their French name *Flamboyante*. An avenue of *Gul Mohur*, all in bloom together, is wonderfully effective, but glows too hotly in the intense glare and proves fatiguing to the eye; so much so that one wonders, who indeed, living where they prevail

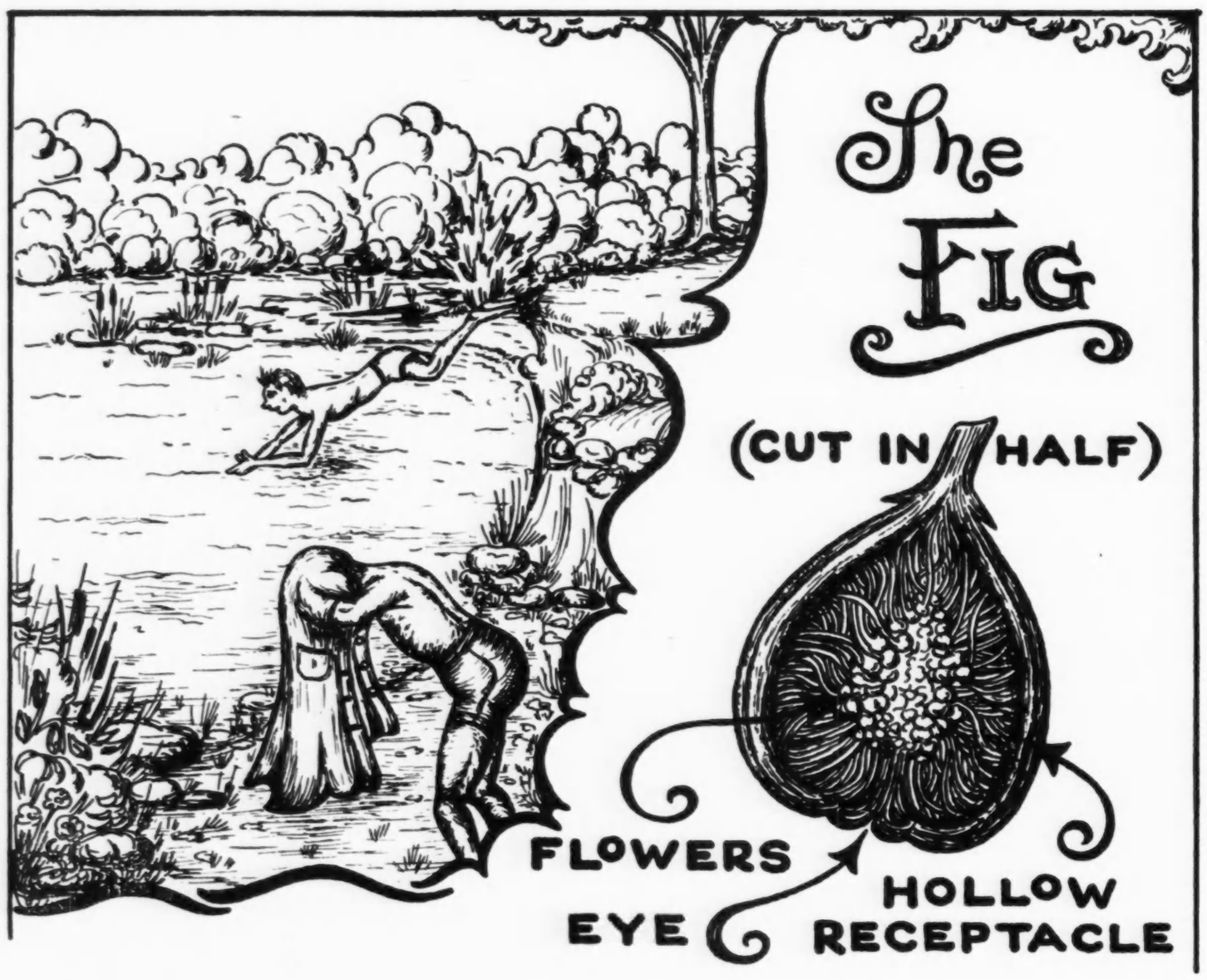
Would choose however dear
That spring should revel all the year?"

"Even planted singly against the blue of the sky, and toned down by the green of surrounding trees, they appear to me as the very embodiment of the spirit of the East, beautiful but wild-looking and seductive!"

One other tree should be mentioned in connection with the royal poinciana, because of their superficial resemblance and close relationship. This is colvillea (*Colvillea racemosa*), also native of Madagascar and sparingly planted in Florida. It would be more widely cultivated except for its failure to produce seeds most of the time. Colvillea flowers which come in October or November, also are red, but there is less profusion and they are set differently, hanging in cylindrical clusters a foot or more long, and the effect above the bright green feathery foliage is magnificent.

There is one colvillea tree in Stuart, Florida, on Riverside Parkway in St. Lucie Estates. There is a big tree on the Blossom estate in Palm Beach, and there was another large one at the old Dicken Nursery near Lake Worth, but it was destroyed by a 1950 hurricane. A tree at Dr. David Fairchild's home in Coconut Grove, another in the Fairchild Tropical Garden, one at 2862 Fairgreen Drive, Miami Beach, and a few trees in Fort Myers, but, unfortunately, these are about all that have been established in Florida. Perhaps the future will find this beautiful tree more widespread.

PLANTICS



Like children, plants play "antics". Hence our term "Plantics" or, if you prefer, "plant antics".

Actually, these so-called "plantics" are natural, though unusual, phases in the life cycle of some plants. For instance, the fig is not unlike a boy who readying for a swim peels off his shirt "inside-out". The fig has turned its flowers completely "outside-in". The flowers of the fig are borne within a hollow receptacle. Because they are not visible, scientists of the 12th, 13th and even later centuries believed the fig to be a flowerless plant. The translation of the Chinese name for the fig is "fruit without flower".

Equally strange is the way in which pollination is effected by minute wasps, which enter and fertilize the flowers in the hollow receptacle; then leave about the time the pollen matures, forcing their way out between the scales of the "eye" of the fig. Before the work of the wasp was known, attempts to grow fruiting plants in America failed. When the wasp was imported, the plants produced.

MAC KEEVER

Sao Paulo

(*Continued from page* 83)

plants also exist there. Some species of the Lentibulariaceae are cultivated in the marshy terrain: *Utricularia reniformis* also exists in the pools formed by the leaves of Bromeliaceae.

Considering the fact that the Botanical Garden always awakens systematic interest, without, however, being able to satisfy it because of the great diversity of the components of the genera and families, it was decided to install a small museum. In it are housed in cabinets, behind glass doors, herbarium specimens; photographs and oil paintings presenting various aspects of wood, plains, marshes, sierras, scrublands; a collection of all the woods that grow in the Botanical Garden; all the publications prepared and published by the Institute of Botany during its short existence. The spacious ceiling of the central room, made of stained-glass, allows the light to filter across the colored reproductions of plants arranged in systematic order. The center of this stained-glass ceiling is formed by a fine assemblage of Orchidaceae, appearing in natural colors and natural size; *Cattleya labiata vera, Laelia purpurata, Miltonia spectabilis, Zygopetalum maxillare* and *Oncidium varicosum Rogersii.*

Among the publications which the Institute of Botany prepares and publishes, several series can be singled out: A — Scientific and technical, which include: "Brazilian Flora", and "Archives of Botany of the State of São Paulo"; B—Miscellaneous: "General Observations and Contributions to the Study of the Flora and Phytophysiognomy of Brazil" and similar studies; C—Occasional works: monographs, special theses, specialized subjects: medicinal plants, toxic plants, arborization, silviculture, and native fruits, etc., and D—Publicity: annual and occasional reports, pamphlets, unsolicited articles, pictures, charts, films, photographs and lectures.

As an institute of scientific interest, the Botanical Garden cannot consider requests for plants or seeds. Small quantities of seeds can, however, be sent when others which are of special interest in the work of the Garden can be offered in exchange.

For the Younger Generation of Gardeners

"AS THE TWIG IS BENT —"

By John Quill

You may have heard people say "As the twig is bent so grows the tree." They usually mean that boys and girls will grow up as they are trained. With this in mind, therefore, I write these words for you in the hope you may wish to follow them as part of your training. The training I plan to talk about, however, is fun and I am sorry that I did not have it when I was "a twig."

As a little boy, I wanted to be a fireman so I might ride on the gleaming red, brass-trimmed engine drawn at reckless rate by three galloping white horses. At other times, I desired to be a railroad engineer and with the throttle wide open to go clattering over the rails past the green fields, the cities and towns with my train of cars clicking and clacking behind me. For a short while, I thought of becoming a knight in shining armor, fighting battles for a king. However, I gave this up when told there were no longer any knights and kings did not need my help.

In those early days of mine, little girls dreamed of being pretty princesses with jeweled crowns and beautiful robes, sought out by the bravest and most handsome of the princes. Or they wished to be a star of the theater, playing the choicest of heroine roles.

Today, you young lads want to be cowboys riding the ranges seeking badmen or, perhaps, you wish to be "G-men" with thrilling adventures. Then, again, you may prefer to play pilot of a jet streaking faster than sound through the skies after enemy craft.

You young ladies most probably think it wonderful to be a movie star or glamorous television actress.

These are quite natural daydreams of boys and girls. They are a way of having adventure, even if only make-believe.

The trouble, however, with all this is that few of us ever become cowboys, G-men, jet pilots, movie or television stars. As we get older we turn to other things. In fact, when you reach my age you say: "My goodness! How did I ever get any fun out of that!" Strange as it may seem to you now, you will undoubtedly say the very same thing when you are older. Unfortunately, we forget all too soon the way of making pleasure come from little things.

Suppose, therefore, I said you can have pleasure and adventure today which you may enjoy continuously through life? Suppose I told you that you can play at being something today which, when you grow older, you can really be?

You may doubt me and want proof of what I say. You have every right to ask it.

If you will join me outside, we together shall find the answer.

Let us look about us at the flowers, the trees, and even the grass under our feet. Why is the bark of that oak so dark and its wood so hard, when the birch nearby has almost white bark and its wood is soft? They grow side by side on the same ground; they share the same sunlight, the same rain, the same air. And yet each is completely different.

Have you ever said to yourself, "Isn't it strange that this should happen? I wonder why?"

Look now at those zinnias growing in the border. They are all shaped alike, their leaves and stems are much the same. But what a variety of colors! Have you ever said, "I wonder why they aren't all red or all yellow instead of so many different colors?" Have you ever tried to find an answer?

Look at the grass. How soft it feels when we go barefoot, how sweet it smells when freshly mowed. Isn't it a pretty green? But have you ever wondered why it is so green; or how it might look if it were dark grey, deep purple or brilliant orange?

Let us go over to the rose bush and study its flowers and leaves. Be careful, though. Don't let the thorns stick you — and since we have mentioned them, have you ever thought it strange a rose bush should have thorns when, for instance, a lilac or snowball bush does not?

But we were going to look at the rose. Have you ever studied how nicely, how neatly the petals are folded together in proper order? Have you ever wondered why the same bush each year (maybe as long as you can remember) has always had the same colored, the same sized, the same scented flowers? Have you ever thought how folks would come from all around were your zinnias to grow roses and your rose bush, zinnias? Or, suppose those zinnias we talked about began to have the scent of roses! Can you imagine what you might say?

Were you to awake tomorrow and, looking out the window, find everyone of these things about which we talked had turned a bright blue, I am sure you would rub your eyes real hard and look again because you would not believe it true. Doesn't it make you wonder just a little bit why such a thing doesn't happen and what does keep the flowers, the trees, the shrubs, the grass doing just the right thing, the thing we expect them to do?

I see you are saying to yourselves why does he ask all these questions? What have they to do with playing at something now which we can really be when we grow up? What is it we should play at that will always give us pleasure and adventure? My answer is — play now at being a botanist.

No mystery book, no adventure story, no matter how well written, can begin to equal the thrilling wonders of nature. The wonders we take for granted each day but about which we know so little.

For you boys, particularly, it can be a source of great and yet useful, adventure. Many of the plants you see have been brought from strange and far off lands. Many botanists — like the explorers of old—go into parts of

the world where man may never have been before. They seek new plants to bring to you and me. Plants which may be used in our gardens or window boxes or which, when potted, give indoor decoration. Or, they may be plants that give us new medicines with which to treat our various illnesses.

These botanists may meet in distant places tribes who have never seen a stranger. They may face a ferocious tiger or narrowly escape the bite of the bushmaster snake. When in the tropics, they may cool off after sundown by swimming in a jungle river and barely scramble ashore in time to avoid the shock of an electric eel. They may climb high mountains to find on their tops new and strange plants. They may shoot the rapids of an uncharted stream to reach far-off places. They eat strange foods and see strange insects like the army ant that may come marching by the thousands into their camps. I ask you — can any cowboy begin to equal such adventures?

But traveling to distant lands is not the only source of pleasure and adventure. Have you ever tried various ways of growing plants?

Have you ever planted a bean, for instance, in a glass and watched it sprout? Have you ever planted zinnias in a small box and watched them push their way through the ground? Why you can almost see them grow! I can tell you it is fun to watch them— and, when they are large enough, to plant them in the garden where they will be your own special flowers.

Today, you can enjoy the thrills of discovery as you play at being botanists. As you grow up, you can keep adding new thrills, new pleasures by increasing your knowledge about our plants.

By now you may think I am a botanist trying to get you to be one, too. Were I a botanist, I would have tried to answer the questions I asked you. Unfortunately for me, I am not. I can only wish I were. Maybe if someone had "bent the twig" by asking me these same questions when I was a little boy and had told me a little of the thrills a botanist enjoys, I "as a tree" would undoubtedly have become one. For I would have started by playing at being a botanist instead of fireman, engineer or knight.

African Violets

(*Continued from page 79*)

Table on Root Growth of African Violets

Treatment	Leaf cuttings used	Length of time required for roots to appear
1 p.p.m. for 30 minutes		
Indole-acetic acid		
1. In dist. water	3	10 days to 2 weeks
2. In tap water	3	10 days to 2 weeks
Indole-butyric acid		
1. In dist. water	3	2 weeks to 3 weeks
2. In tap water	3	2 weeks to 3 weeks
No treatment, but growing		
1. In dist. water	3	3 weeks to 4 weeks
2. In tap water	3) more at various times of the year)	2-3 weeks in the spring longer during other times of the year.

post is naturally sandy, the sand may be omitted. In potting my little plants, I have been using my garden soil which is sandy loam, three parts, and leaf-mold, one part. The African violets seem to grow well in it.

Naturally in growing African violets, one wants plants to be free from insect pests and diseases, such as mealy bugs, cyclamen mites, nematodes, and fungi. For fungus diseases baking the soil at 350° F. for an hour is very good. This will also kill nematodes if present in the soil. Pots and other containers should be carefully sterilized with boiling water or a dependable insecticide. For cyclamen mite or broad mite, one of the better known sprays such as NNOR, Volk, Optox and others may be safely used, if the manufacturer's directions are carefully followed. Mealy bugs may be removed and the place touched lightly with rubbing alcohol. Repeat treatment as often as necessary as it will not harm the plant if not used to excess. Should this fail it may necessary to dip the plant in one of the above-mentioned insecticides.

During the three-year experimental period, not one plant in my collection was lost because of physiological conditions or conditions caused by insects or fungi. One reason possibly is that practically every one of my one hundred plants came from a clean, healthy leaf and were planted in soil free from diseases which attack African violets.

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Rose Growers and Nurserymen

401 Paterson Ave., East Rutherford, N. J.

ROCKY MOUNTAIN NATURALISTS. Joseph Ewan. 358 pages, illustrations, bibliography, index. University of Denver Press. 1950. $5.

Here is a gold mine of information about the natural history collectors who made known the mysteries of the Rocky Mountain region over the 250-year period terminating in 1932. Mr. Evan is a past master at assembling this sort of material about people, for he is a leading biographer and bibliographer who misses very, very little, and he writes most easily.

This book is divided into two sections. The first part presents detailed biographical sketches with portraits of nine leading naturalists: Edwin James, John Charles Fremont, C. C. Parry, H. N. Patterson, Marcus E. Jones, Edward Lee Greene, Thomas C. Porter, Eugene Penard, and T. D. A. Cockerell. Essentially the same accounts of seven of these were earlier published in the monthly organ of the Colorado Mountain Club under the running caption "Botanical explorers of Colorado."

The second half of the book is a roster of collectors that aims at completeness for all fields of natural history. This is prepared in biographical dictionary form and includes 798 accounts. Ewan has drawn from the usual sources for these data, but has obviously done a tremendous job of original collation and information gathering, the results of which now appear for the first time and add greatly to the value of this volume as a source book.

The thoroughness of the author's work and the excellent organization of the material find a rewarding setting in this very attractively printed book. If you want to know more about some obscure collector of the Rocky Mountain region, look for his name here. You will probably be surprised to learn how much Ewan can tell you, for these accounts specialize on lesser known individuals.

David D. Keck.

THE NATURAL PHILOSOPHY OF PLANT FORM. Agnes Arber. 247 pages, illustrated, indexed. Cambridge University Press, New York. 1950. $5.

Organic form presents probably the most fundamental of all biological problems, since form is the visible expression of that organized system which every living thing is. To a consideration of this problem, Mrs. Arber brings a ripe knowledge of plant morphology and a wide acquaintance with its literature. Like most English scientists, she feels a compulsion to set the question up against the background of classical opinion, and discusses at length the views of Aristotle and the Greeks together with those of the early moderns, notably Goethe. For the origin of form in plants, she does not look to evolution nor does she see much value for it in the reconstruction of phylogenetic trees. She is inclined to think that such series may be merely mental constructs with no validity as actual progressive changes with time. Still less does the author value the morphogenetic approach, which seeks to understand the origin of form in terms of biochemistry, biophysics and genetics. Instead she accepts Goethe's idea of morphological *types* and proposes a return to the idealistic morphology which was dominant among botanists and zoologists in the years before Darwin, and which has found support today among students of plants like Troll and his school. The author marshals an imposing body of evidence that leaf, root and flower can all be interpreted as modified or partial shoots and thus brought under a single morphological type.

As to how such a type may be related to the origin of an actual plant form, the author appeals to the fourth of Aristotle's primary causes, the "Formal Cause," the essence or essential nature of a thing. This necessarily leads to a discussion of mechanism and teleology which most readers will find less rewarding than the earlier parts of the book. In a day when almost the entire attention of biologists is centered on problems of the physics and chemistry of living things, it is refreshing to be reminded that what makes biology different from the physical sciences is this basic phenomenon of *form*, still almost completely unexplained. The present reviewer, however, would prefer to look for a more scientific and somewhat less philosophical analysis of the problems of morphology than is offered in Mrs. Arber's volume.

Edmund W. Sinnott
Yale University

LILIES OF THE WORLD. H. Drysdale Woodcock & William T. Stearn. 431 pages, illustrations, bibliography, index. Charles Scribner's Sons, New York, 1950. $8.50.

All gardeners interested in lilies will welcome this new authoritative book on the genus *Lilium*. The interest in lilies as garden subjects is rapidly increasing and information concerning their culture is in considerable demand. The first part of the book covers general information regarding lilies, including structure of the plants, soils, propagation, hybridization, diseases and insects. This portion will be especially interesting to the amateur gardeners who are growing lilies in their gardens.

The chapter on propagation describes in detail the several methods by which lilies may be increased. The section on seed germination will be especially helpful in describing how some lily species germinate rapidly and others require a year or more before they appear above ground.

A great deal has been said and written concerning diseases and insects of lilies and the chapter devoted to this subject covers the most recent discoveries in this field. The disease problem has been one of the greatest deterrents to growing lilies, and the authors point out the confusion that exists concerning some of these troubles.

The second part of the book is concerned with the botanical classification of lilies and also *Nomocharis*. Here the authors have made a thorough search of the literature and reviewed and brought up to date the nomenclature of all known lily and *Nomocharis* species. Several lilies have had their names changed, including a welcome return to *L. sulphureum* for *L. myriophyllum*. The lily known as *L. roezlii* also now becomes *L. vollmeri*.

The book is well illustrated and is a welcome addition to the literature on lilies.

S. L. Emsweller,
U. S. Dept. of Agriculture

EVERGREEN ORCHARDS. William H. Chandler 452 pages, illustrated, indexed. Lea & Febiger, Philadelphia, Pa. 1950. $6.

As a companion text to his earlier book, "Deciduous Orchards," Dr. Chandler has gathered together and organized in concise form in "Evergreen Orchards" an amazing amount of information on subtropical and tropical tree crops. Although he states that this text is not written primarily for students specializing in this field, it is certain that not only will the book survey the field for general horticultural students, but also that specialists in these fruits will find between its covers and in the very extensive literature citations much information they were not aware of previously. Some teachers will consider as overly ambitious and unnecessary certain portions of the first two introductory chapters, which discuss the anatomy and physiology of the tree. On the other hand, anatomy and particularly physiology are indispensable tools of the horticulturist, and tree responses to such factors as light intensity, temperature, moisture, and nutrient supply can only be studied in physiological terms.

The tropical and subtropical crops of major economic importance such as citrus, avocados, mangos, papayas, tea, coffee, cacao, olives, dates, bananas, and coconuts are, of course, treated more fully than the numerous minor fruits such as the anonas, litchis, sapotes, mangosteens,

(*Continued on page* 94)

News, Notes and Comments

The herb garden at the 35th International Flower Show received not only the gold medal of the International Flower Show but also gained for The New York Botanical Garden the coveted award, the Bulkley medal of the Garden Club of America. It was a very beautiful garden—the result of the cooperative efforts of T. H. Everett, Horticulturist, A. C. Pfander, Superintendent of Buildings and Grounds, and Louis Politi, Head Gardener.

On Board RMS — Caronia. **The following has been taken from the interesting bulletins which Mrs. Robert Montgomery sent to Dr. William J. Robbins on the round-the-world cruise which she and Colonel Montgomery made this past winter on the "Caronia".**

"On January 29, we arrived in the harbor of Pago Pago. We had our first view of the emerald-green, coconut-covered mountains and the sandy beaches with the typical 'south sea island' thatched houses at seven o'clock in the morning. I hung out of our port holes with field glasses, enjoying every moment of our thrilling arrival. It was even more beautiful and romantic than I imagined. Hot, too!

"Lt. Fitzgerald, Governor Darden's aide, was the first man to come aboard. I told him we had a letter from Mrs. Clark Stearns, whose husband was Governor of American Samoa from 1914-1915, to Governor Darden. He immediately invited us ashore . . . to the Governor's very attractive house . . . Large rooms with tremendous ceilings, pandanus matting rugs on the floors, a beautiful dado around one of the porches of sections of fine pandanus matting and tapa cloth. Tropical plants growing out of halves of coconut husks and large shells everywhere. Mrs. Darden has designed many unusual containers and mats and has had the natives make them for her. I was entranced by it all.

"The views from Government House are so beautiful — gorgeous tropical trees with the heavenly blue water in the distance. I love the breadfruit trees. The leaves and fruits are so artistic, they are lovely in arrangements.

"The Fita Fita guard boys were most attractive young men, all speaking English well. They went shopping with us and were most helpful . . . I bought a beautiful old Kava bowl. It is used in the Kava ceremony. The root of the ava tree (*Piper methysticum*) is pounded in it into powder, then water mixed with it and then strained with the use of fibres and hands! It is served in coconut shells to the highest ranking person first, then on down . . .

"We met D. H. Butchard who is with the Department of Agriculture there. He kindly offered to send the Fairchild Tropical Gardens some white and yellow ginger. They are large-petaled flowers about the size of our *Bauhinia* and very fragrant.

"This letter will combine our stop at Vavau in the Tongan or Friendly Islands with our wonderful day (Feb. 3) in Suva, Fiji. We arrived at the remote port of Vavau early in the morning of Feb 1, having skipped Jan. 31 because of crossing the International Date Line.

"I could see from our port holes that the islands were a different shape and formation from Pago Pago in the Samoan group. The Tongan islands are of coral formation of rather flat surface. I have never seen so many coconut palms in all my life as flourish there. Also the *Casuarina;* it grows everywhere, in the most unlikely rocky steep places.

"The buildings in Vavau are ugly wooden structures with corrugated iron roofs, and was it hot there! It is not the romantic lovely place Pago Pago is . . .

"I noticed that the colorful costumes on the dancers included necklaces made of segments of the red or orange-fruited pandanus. One woman's costume was made entirely of croton leaves — it was stunning. I found a native policeman who spoke a little English and asked him where I could find a whole fruit of the red pandanus. He misunderstood me and took me to a stall where beads were being sold! Finally I made it clear to him and he beamed and said it was the fruit of the fa tree . . . and he very kindly sent one of his men into the country to get one for me. When the boy finally arrived with the red pandanus, I was very glad to say goodbye to Vavau and return to the cool, clean, comfortable ship.

"We did not expect to find in Suva such a welcome as we received there. But you had kindly written to Dr. B. E. V. Parham at the Department of Agriculture and to Sir Alport Barker, Mayor and Publisher of the Fiji Times and Herald. Both came aboard as soon as we tied up at King's Wharf.

"I could see from our port holes many lovely flowering trees . . . *Cassia fistula* (shower of gold) was in full bloom and many beautiful lagerstroemia trees. The poinciana had just finished blooming. Breadfruit trees were everywhere.

"Native dancers and the spectacular fire walking were scheduled for the passengers (of the Caronia) at the Botanical Garden, so Dr. Parham drove us there. While our friends watched the dancers... we dashed around the garden taking pictures and noting the fine old trees. One of the biggest, covering about one-half acre, is the *Samanea Saman*, or rain tree. Another beauty is Tahitan chestnut. Three beautiful Marquesa Island palms, *Pelagadoxa Henryana* with lovely pineapple-shaped fruits and pinnate leaves; huge old albizzias; the cannon ball with plenty of flowers but no fruits; a weeping coconut; a gorgeous big shade tree from Australia, *Elaeocarpus grandis*, with some of the leaves turning red and blue sculptured seeds — these were some of the outstanding beauties."

Ninth Annual Rose-Growers Day. **June 8th has been selected as the date for the 9th annual Rose-Growers' Day Program at The New York Botanical Garden. Dr. John P. Carson, President of the Pennsylvania Horticultural Society and an excellent lecturer on roses, which are his hobby, will be guest speaker at 11 a. m. This will be followed by a question and answer period, and an hour for box luncheon (each visitor provides his own — hot and cold drinks are served by the Garden). The afternoon will be spent in the rose garden, giving visitors an opportunity to study the roses and ask more questions. Leading horticulturists will be guest hosts, with T. H. Everett, Horticulturist of The New York Botanical Garden serving as chairman of The Committee of Guest Hosts for Rose Day.**

Garden Club of America. **The Horticultural Committee of the Garden Club of America will meet at The New York Botanical Garden on May 16, 1951. Mrs.**

Natalie Webster is in charge of the morning program, assisted by Mrs. Charles Proffitt; and Mrs. Henry Cooper and Mrs. Harry Peters are in charge of the arrangements for the box luncheon to be held in the Members' Room.

Old English May Customs. An exhibit of Old English May customs and historic garlands is on display this month in the rotunda of the Museum and Administration Building. These include reproductions of old May poles, a medieval May-tree, the famous Padstow hobby-horse and Jack O' the Green, whose antics are sometimes seen down to this day in rural England.

A milkmaid's pail, decorated with silver mug and garlands, as described by Samuel Pepys, and a reproduction of the goblet filled with gilded rosemary that was carried before Ann of Cleves on her wedding day, will be among the interesting displays.

Other cases will contain classic and renaissance crowns and garlands, adapted from the paintings of Andrea Mantegna and Sandro Botticelli, and from Greek and Roman sources. The Exhibition Committee is indebted to the Metropolitan Museum of Art for the loan of many of the rare objects in this fascinating exhibit.

Genus Named in Honor of Dr. Moldenke The genus *Moldenkea* has been proposed by Dr. Hamilton P. Traub, of the Bureau of Plant Industry Station, U. S. Department of Agriculture, Beltsville, Md., for a group of amaryllids typified by the *Amaryllis lateritia* of Guinea (Africa). In his dedication, Dr. Traub says: "This new genus, which apparently belongs in the Tribe *Cyrtanthea*, is named in honor of Dr. Harold N. Moldenke, Curator and Administrator of The New York Botanical Garden, in recognition of his valuable contributions toward the advancement of the amaryllids."

Annual Meeting. The annual meeting of The New York Botanical Garden will be held on May 10, 1951.

June Jewels. The Garden Club of New Jersey will hold a spring flower show at the Women's Club, Upper Montclair, N. J., June 6 and 7. The theme: June Jewels, Jewels of the mine will complement jewels of the garden in flower arrangements and table settings; precious and semiprecious stones are being loaned by the National Jewelry Industry. The horticultural section will also offer to the spectator the best of jewels from June gardens. The American Iris Society will offer the members of the Garden Club of New Jersey the opportunity to receive the silver and bronze medals for exhibits of fine iris.

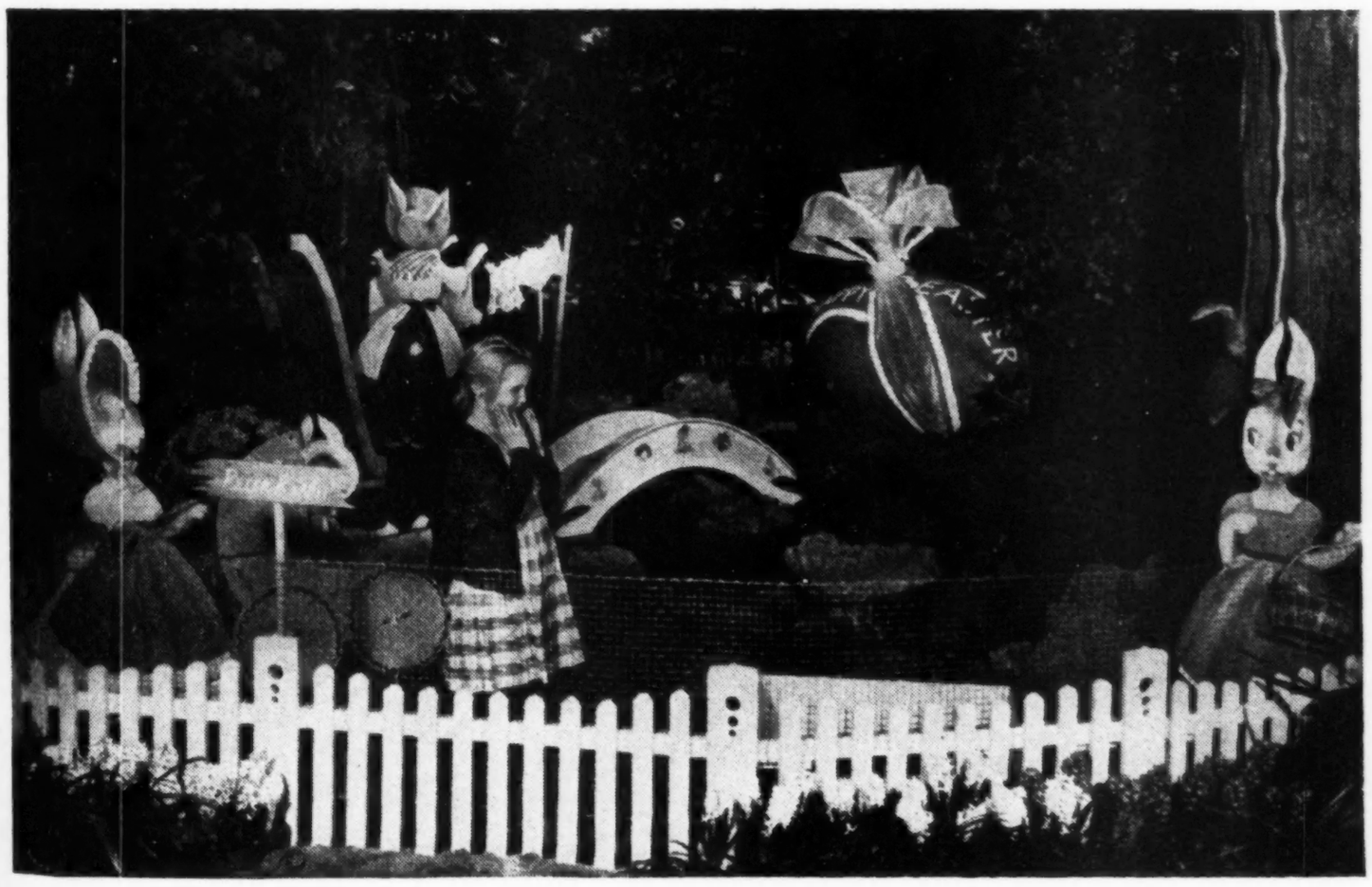
Gift of Kodachromes of Strophanthus. A gift of twenty-seven kodachromes of *Strophanthus* species and their habitats and one of *S. Ledienii* has been donated to The New York Botanical Garden. The former are a record of the Upjohn-Penick African Expedition of 1949-1950, lead by L. J. Brass and E. F. Woodward, and the latter was communicated by Professor T. Reichstein, Basel, Switzerland. The genus *Strophanthus* has been recently under investigation as a precursor of cortisone, but some of the species have long been known for the beauty of their flowers as well as for their uses as arrow-poisons. *S. gratus* was awarded a prize at the Devon and Exeter Horticultural Society's exhibition in 1849. It flowers profusely in the Garden's Conservatory, and its large showy blossoms are rose-pink colored and rose-scented. Professor Reichstein wrote concerning *S. Ledienii* that his collectors, Drs. Brass and Speiser had made great efforts to obtain the plant. Finally, they discovered a single one and were "overwhelmed by the beauty of the flowers."

Advisory Council. At the February meeting of the Board of Managers, Mrs. Henry B. Guthrie, New York City, Mrs. Volney Righter, Bedford Hills, N. Y., and Mrs. Charles D. Webster, Islip, Long Island, were elected members of the Advisory Council.

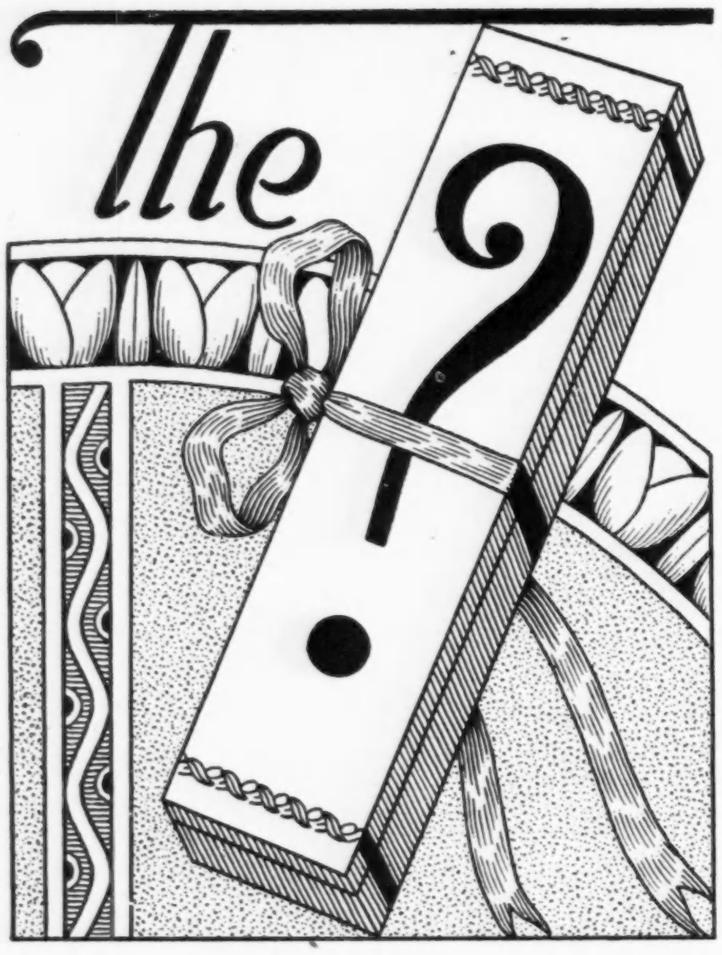
Saratoga Experimental Gardens. The need in central California for an experimental station devoted to the improvement and enrichment of western ornamentals has long been recognized by western plantsmen. It has been a lifelong ambition of Raymond D. Hartman, a leading horticulturist on the Pacific coast for over forty years. Mr. Hartman is owner of the Leonard Coates Nurseries at San Jose, California and has taken an active part in the nurserymen's associations in that state, and also in civic organizations. His ambition was realized the beginning of this year when he founded the Saratoga Experimental Gardens at Saratoga, California, selecting the place because of its favorable climatic conditions for testing a wide variety of plants. His friend of many years, Maunsell Van Rensselaer, has assumed the position of Director. Mr. Van Rensselaer has been Director of the Santa Barbara Botanic Garden in Santa Barbara, California, for the past sixteen years. He has introduced into cultivation several species of *Ceanothus* and was instrumental in having the Santa Cruz Island ironwood (*Lyonothamnus asplenifolius*), adopted as the official tree of Santa Barbara County. He has assisted in the design of public parks and gardens and also served the U. S. Department of Agriculture in emergency research on plants for wartime purposes.

"A Visit to Venezuela". A few weeks ago, visitors to The New York Botanical Garden saw a scene straight from the depths of the Amazon jungles of South America, when "A Visit to Venezuela" was staged in the conservatories. A full-scale scene was reproduced of Culebra, a tiny Indian village located near the upper Rio Cunucunuma, in the Territory of Amazonus, Venezuela. This small group of palm-thatched, lean-to huts was used as the headquarters of The New York Botanical Garden's seventh expedition to the remote plateaus of Venezuela. In the midst of palms and tropical jungle foliage was a native hut, a palm-woven, three-sided lean-to built on a sturdy frame. Its furnishings consisted of several hammocks suspended from the frame and a crude oven made of rocks. Representative items of the utensils and handicraft of the natives, including woven bead garments worn by the women on the occasion of fiestas, were shown in the exhibit. A special feature during the show was the twice-daily demonstration of the use of the native blow-gun, a long ornamented wooden pipe through which the natives blow poisoned darts with incredible accuracy.

New Garden Book. T. H. Everett, Horticulturist of The New York Botanical Garden, has written a very interesting and comprehensive *Handbook on Gardening*. Written especially for the amateur gardener, it is equally helpful to the expert, reminding him of valuable gardening practices. The book has only been out a little over a month but has already received considerable acclaim.



The facial expression on this young miss is indicative of the pleasure which Peter Rabbit's Country Estate gave to thousands of children and their parents and friends. It was staged in the Conservatory of The New York Botanical Garden, March 16 —April 4, 1951.



Address your questions to *The Question Box, The Garden Journal of The New York Botanical Garden*, Bronx Park, New York 58, N. Y.

Q. We are situated on quite a slope, and to hide new houses being built in back of us, still higher, we should like to plant a row of *Fagus fastigiata.* Would it make a suitable shield? How far apart should the plants be?

A. The erect form of the European beech, *Fagus sylvatica fastigiata*, forms a good screen and is of moderately fast growth. To make a close screen, at maturity, the trees may stand about fifteen feet apart; for an immediate effect, they may be planted closer.

The beech thrives best in a fertile, well-drained soil but does well in reasonably dry situations.

T. H. Everett, Horticulturist

Q. I have been most eager to grow magnolias in my garden. The Pittsburgh area seems generally favorable to them, as homes in the Schenley Park neighborhood have many which bloom quite well every spring. When we moved to the outskirts of Pittsburgh in 1946, I bought a magnolia bush from a nursery in Pittsburgh believing it would have the right variety suitable for this climate. It had several buds on it then and that spring bore two very puny blooms which soon dried up. Before July the bush was dead, although no insect pests or blights were visible. The following spring I bought two more—neither one bloomed and both died.

Our soil is somewhat sour, as this was originally wooded land, but other shrubs do well. Do magnolias need special plant foods or other special treatment?

A. Magnolias are notoriously rather difficult to transplant. In my opinion, the best time to move them is early May. Every care should be taken to preserve the root system without drying and as intact as possible.

The trees should be mulched after planting and under no circumstances should they be permitted to suffer from lack of water during their first summer. Magnolias thrive best in a fertile, moderately moist and porous soil.

T. H. Everett, Horticulturist

Q. Will you recommend a book on how to attract birds, which will more or less apply to southern California?

A. I suggest the following publications:

Government publication (can be obtained by writing to the Superintendent of Documents, Washington, D.C.) Fruits attractive to birds, California, leaflet BS-45.

McElroy, Thomas P., Handbook of attracting birds. Alfred Knopf, publisher, New York. $2.75.

McKenny, Margaret, Birds in the garden and how to attract them. Grosset, $2.98.

Elizabeth C. Hall, Librarian.

Q. I was particularly interested in the article on sansevieria in the January-February issue of The Garden Journal. Mine always turn brown at the tips. Can this be avoided? I see huge pots of them in banks but my plants stay little and scrawny. How do you make them grow?

A. These plants thrive best in a well-drained, loamy soil which should be kept constantly and evenly moist but not saturated. They enjoy a temperature of sixty to seventy degrees, a moderately moist atmosphere, and shade from direct sunlight.

T. H. Everett, Horticulturist.

Book Reviews

(*Continued from page* 91)

and cashews, for example. This is only natural and logical, since more is known and has been published regarding the major crops. In all, the crops discussed fall in fifty-one genera comprising twenty-nine plant families. Students of this book will be intrigued with the great number of tropical and subtropical fruits which exist and their occurrence in so many families of the plant kingdom. They may be surprised to find that in economic importance and in usefulness to many peoples of the world, these fruits far exceed those of deciduous trees.

Frank E. Gardner
U. S. Subtropical Fruit Field Station
Orlando, Florida

NATURAL DYES. Sallie Pease Kierstead. 104 pages, illustrated, indexed. Bruce Humphries, Inc. Boston, Mass. 1950. $2.75.

Gardeners who have been intrigued by rather vague references to wild plants and herbs as "dyers weeds" will welcome this exact and practical handbook to home-made colorings for cloth. Handicrafters who specialize in hand-weaving and rug-hooking or braiding will find it an excellent guide and one of the few modern books on a subject closely related to their art.

Mrs. Kierstead gives step by step directions for extracting dyes from plants, mordanting and dyeing wool, cotton, linen and silk. These are enhanced by photographs of the author in the actual process of dyeing cloth and testing it for fastness of color. Descriptions of the principal dye plants which can be grown in the garden or found growing in woods and fields are illustrated by line drawings by Ruth Kierstead, her daughter.

Finally, an alphabetical list of roots, barks, herbs and flowers which give different shades, a table of dye plants arranged by color and one of compound colors complete the book. The reader is impressed with the ingenuity of the author in simplifying what formerly seemed like a very difficult process to terms and methods which inspire him to try natural dyes. This confidence stems from the assurance that all of the directions set forth are the result of long hours of actual experimentation plus much research through old herbals and books of the trade.

Gertrude B. Foster
Falls Village, Conn.

A PLAIN PLANTAIN. 98 pages. Excerpts and receipts from Madam Susanna Avery's Still Room Book dated 1688. Reprinted and published by The Herb Grower Press, Falls Village, Conn. 1950. $5.

This slender volume charmingly printed and made up was one of a collection belonging to Rosetta Clarkson. In its present format, it would make a delightful gift to a country dweller on the part of a week-end guest. The recipes are primarily of folk interest, because the quantities are given in handfuls, a small glass, and so on. Recipes for making White Meade, Frontineack (made with flowers of elderberry) sound intriguing and the instructions on "how to souse a pig" to make weapon salve (with bear's grease and boar's grease) take one deeply into the realm of folklore.

It is a little volume to be savored for its quaintness and the Fosters are to be congratulated on reproducing the old type and producing such a charming book on their press.

Helen M. Fox
Mt. Kisco, N. Y.

WHEN I MAKE A GARDEN. Ralph Hancock. 80 pages of photographs and text. Macmillan, New York (printed in Great Britain). 1950. $4.

The entire book is made up of beautiful photographs of gardens designed by the author, who will be remembered as the landscape architect of gardens in Radio City and at the International Flower Show some years ago. It is to be regretted that Mr. Hancock did not live to see this attractive volume, giving evidence of his skill in gardening art, in print.

THE PLANT DOCTOR. Cynthia Westcott. 231 pages, illustrated, indexed. J. B. Lippincott, Philadelphia, Pa. Third Revised Edition, 1950. $3.

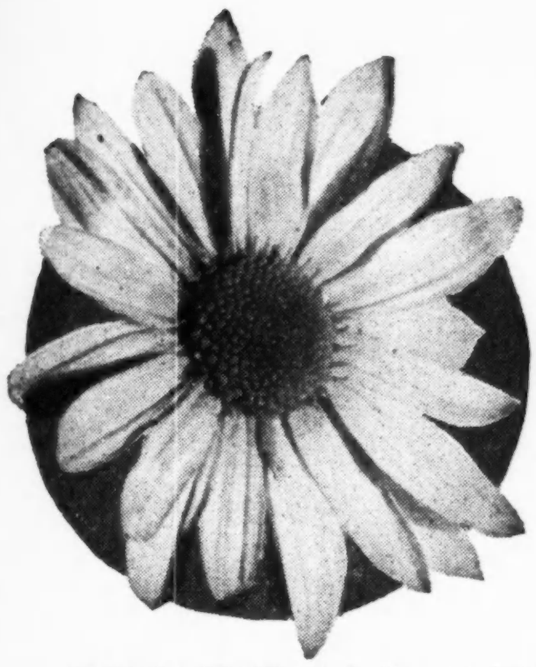
For the home gardener who takes pride in his garden, *The Plant Doctor* is indispensable, providing authoritative advice on the control of both insects and diseases. The information is easily assimilated and applicable to home garden practice. This edition (third) of this popular handbook has been revised in accordance with the latest developments in control methods and chemicals.

Wayside Gardens

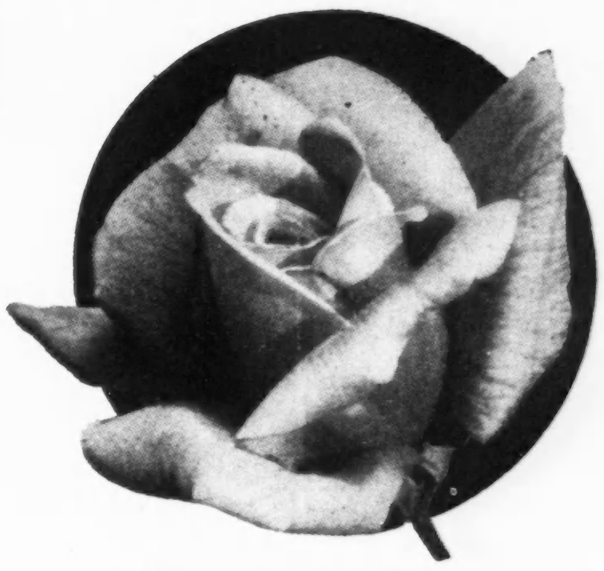
PUT *Color* IN YOUR GARDEN

Whether your preference is for dramatic, bold colors—soft delicate pastels—or a happy combination of both, let Wayside Gardens' new Spring Catalog be your "palette". Paint your garden with nature's finest hues.

With the aid of this world renowned catalog, you can plan a garden that will be filled with a never-ending variety of delightful flowers, changing with the seasons through a lovely kaleidoscope of harmonious colors and interesting forms.



CROWN JEWEL, *Rubellum Hybrid*



SUTTER'S GOLD, *Tea Rose*

NEW CHRYSANTHEMUMS

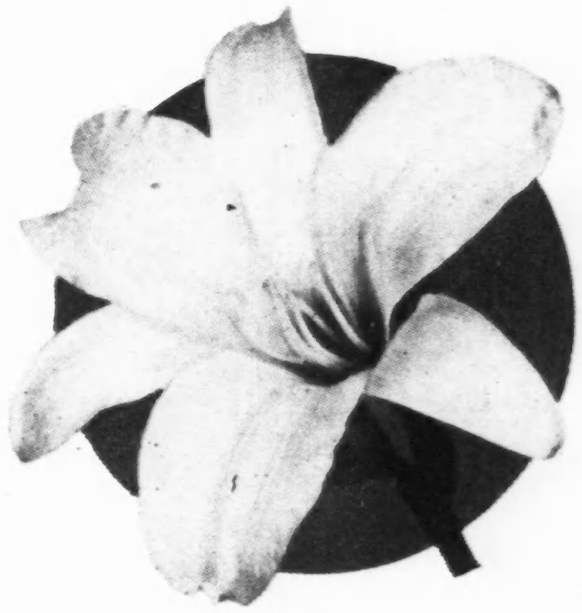
Autumn Rose. One of the most enchanting new "mums" in our entire collection. Its unusual color is hard to describe. Subtle blending of coral, rose and Jasper red with soft buff undertones. Clusters of large, double flowers are fine for cutting. Starts blooming early in September. 2′ tall.
3 for $2.75; Doz. $8.50

AUTUMN ROSE *"Mum"*

New English Rubellum Hybrids, winner of Royal Horticultural Society "Award of Merit". 7 exquisite varieties in luscious shades of pink, lilac, bronze, old rose and deep wine-red. Low growing plants have hundreds of big, daisy-like flowers. These winter hardy new chrysanthemums come up year after year, increasing in beauty.
Collection: (1 ea. of 7 varieties) $6.00

NEW HEMEROCALLIS

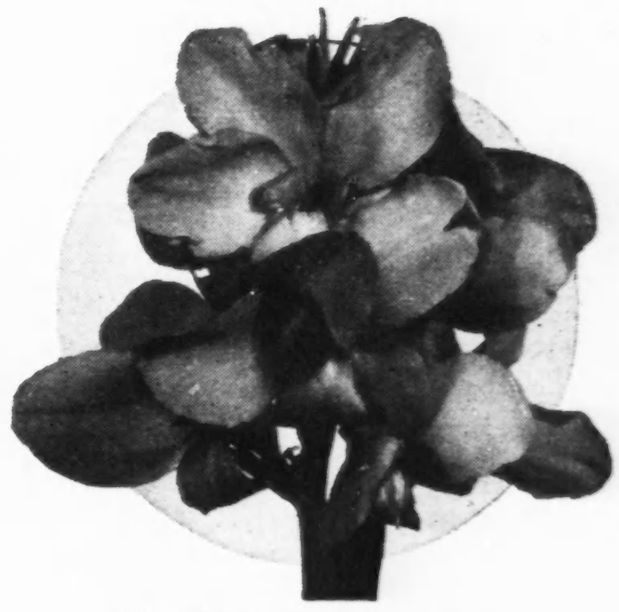
8 brilliant hued new Hemerocallis that we recommend with great enthusiasm. Hardy 2′ to 4′ plants produce beautifully proportioned flowers in vibrantly glowing shades of softest yellow thru fiery red. Flamboyant new beauties will supply radiant, fragrant flowers from June until September. Illustrated is Dido, a lovely warm, clear apricot. Height 36 inches. *Collection:* (1 ea. of 8 varieties) $12.00



DIDO, *Hemerocallis*

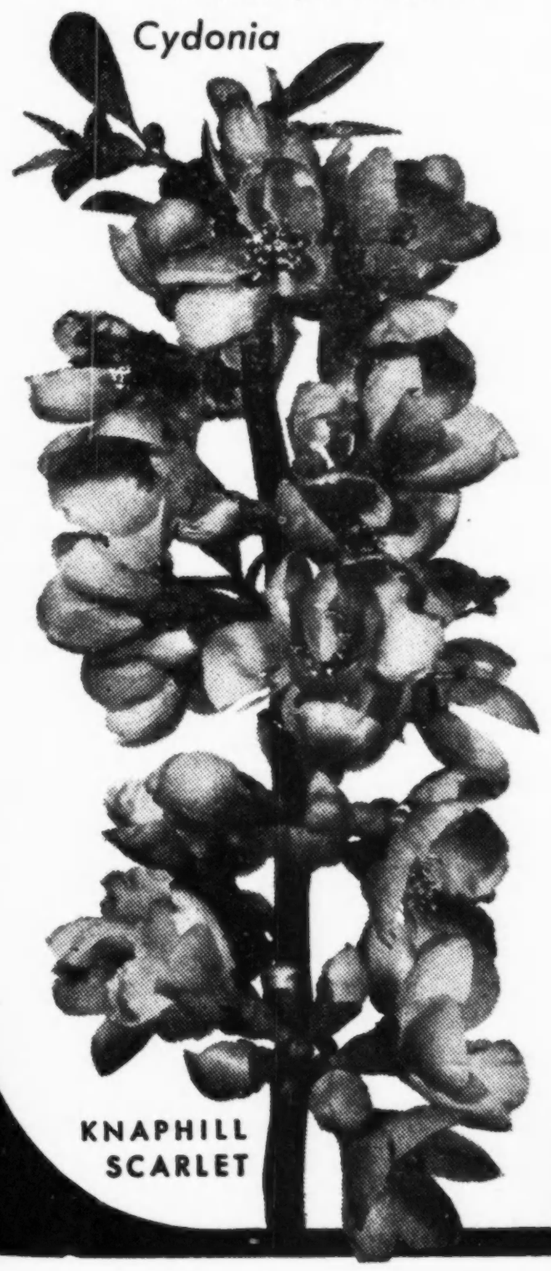
NEW PASTEL CANNAS

Six captivating new hybrids. Introduced last year, they have caused a sensation among our customers. Enormous trusses of gorgeous flowers in soft, delicate pastel shades of peach, old rose, yellow and gold. For luxurious color all summer, plant a few in front of foundation planting or in the border. *Mixture:* 6 for $4.00



MIGNON, *Pastel Cannas*

Knaphill Scarlet. Rare new English origination. This exquisite lovely flowering quince is a choice, low growing plant. At tulip time, mound-like, 16″ high plants are ablaze with large, showy flowers of vermilion red. Stunning as an accent for foundation planting, shrub border or around flower beds.
Ea. $3.50; 3 for $9.75



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Wayside Gardens

THE CORPORATION OF THE NEW YORK BOTANICAL GARDEN

The New York Botanical Garden was incorporated by a special act of the Legislature of the State of New York in 1891. The Act of Incorporation provides, among other things, for a self-perpetuating body of incorporators, who meet annually to elect members of the Board of Managers. They also elect new members of their own body, the present roster of which is given below.

The Advisory Council consists of 12 or more women who are elected by the Board. By custom, they are also elected to the Corporation. Officers are: Mrs. Hermann G. Place, Chairman; Mrs. James C. MacKenzie, First Vice-Chairman; Mrs. Guthrie Shaw, Second Vice-Chairman; Mrs. Barent Lefferts, Recording Secretary; Mrs. Hugh Peters, Corresponding Secretary; and Mrs. John E. Parsons, Treasurer.

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FROM THE HERB SHELF

It was Shakespeare's Ophelia who said:

"There's rosemary for you: that's for remembrance.
Pray you, love, remember."

Rosemary has been a symbol of remembrance for ages. Years ago in England, it was the custom at funerals for the mourners to throw sprigs of this plant into the grave, and sometimes slips of it were even placed within the coffin.

In addition to this sentimental symbolism of fidelity and constancy, rosemary has a more practical value. Oil of rosemary, which is distilled from the leaves of the herb, is "a common preparation in drug stores." This oil is also used commercially by the perfume and cosmetic industries. And, of course, cooks have made use of its aromatic leaves for seasoning food. The recipe below indicates the value of this herb when used judiciously.

Rosmarinus officinalis, as the hardy evergreen shrub is called botanically, is a well-known garden plant that grows to a height of from two to four feet. When in bloom, it bears small light blue flowers. These prove very attractive to bees. The plant will last for years in the north, provided it is placed in well drained soil and is given some winter protection. Along the rocky coasts of southern California rosemary plants are sometimes used as hedges.

SPINACH RING

Ingredients: 1 peck spinach, 2 tablespoonfuls butter, 2 tablespoonfuls flour, ½ cup milk, 3 eggs separated, pepper, salt, and mint and rosemary to taste.

Heat butter in spider; add flour, then milk. When smooth and thick, stir into it gradually well-beaten egg yolk. Add 1-¾ cups boiled chopped spinach, and season with mint and rosemary. Cook, add stiffly beaten white of eggs, place in a well-greased ring form, set in a pan, half filled with boiling water, place in a moderate oven, and let bake for thirty minutes or until it is set. In the center of the ring put either creamed mushrooms, green peas, creamed celery, or buttered sliced carrots, and outside, at intervals around the ring, on the platter, slices of ham, each slice rolled.

Helen M. Fox.

Miss Mary U. Hoffman. Miss Mary U. Hoffman of New York City, passed away on March 4, 1951. Miss Hoffman had been a member of The New York Botanical Garden since April 1919.

Mrs. O'Donnell Iselin. Mrs. O'Donnell Iselin, of New York City, died April 3, 1951. Mrs. Iselin had been a member of the Advisory Council since October 1946 and a member of the Corporation since January 1947.

Mrs. David Ives Mackie. Mrs. David Ives Mackie, who was elected a member of the Advisory Council on April 16, 1925 and had been a member of the Corporation of The New York Botanical Garden since January 12, 1932, died on February 23, 1951.

THE NEW YORK BOTANICAL GARDEN

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LOUIS P. POLITI	*Head Gardener*

To reach the Botanical Garden, take the Independent Subway to Bedford Park Boulevard station, use the Bedford Park Boulevard exit and walk east. Or take the Third Avenue Elevated to the Botanical Garden or the 200th Street station; the New York Central to the Botanical Garden station; or the Webster Avenue bus No. 41 to Bedford Park Boulevard.